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Michigan Timber Industry

An Assessment of Timber Product Output and Use

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FOREWORD

In this bulletin we discuss recent Michigan forest industry trends and report the results of a detailed study of forest industry, industrial roundwood production, and associated primary mill wood and bark residue in Michigan in 1984. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Likewise, researchers need current forest industry and industrial roundwood information for planning projects.

Special thanks are given to the primary wood-using firms that supplied information for this study and to the Michigan Department of Natural Resources foresters who canvassed these respondents. Their cooperation is greatly appreciated.

All board feet data in this report have been converted to International 1/4-inch scale by applying a multiplier of 1.08 to all saw log volume reported in Scribner Dec. C scale by sawmills, a multiplier of 1.04 to all veneer log volume reported in Scribner Dec. C scale by veneer mills, a multiplier of 1.38 to all saw log volume reported in Doyle scale by sawmills, and a multiplier of 1.14 to all veneer log volume reported in Doyle scale by veneer mills.

The last published report from a detailed study of all industrial roundwood output in Michigan was in 1977. Most comparisons in this report are with the 1977 study results. Quantities shown may vary slightly from one table to another because of rounding differences, but these differences are insignificant.

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MICHIGAN TIMBER INDUSTRY—AN ASSESSMENT OF TIMBER PRODUCT OUTPUT AND USE

James E. Blyth,
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HIGHLIGHTS

- Michigan industrial roundwood production climbed to 284.2 million cubic feet in 1984 from 216.3 million cubic feet in 1977.
- Pulpwood accounted for 61 percent of the industrial roundwood harvest, compared to 55 percent in 1977.
- Three species (aspen, hard maple, and red oak) supplied 53 percent of the harvest.
- Michigan produced a record high 2.40 million cords of pulpwood in 1984. This record was broken in 1986 when production was 2.81 million cords, based on the North Central Station's annual study of pulpwood production.
- Aspen constituted 44 percent of the roundwood cut for pulpwood.
- Michigan pulp mills procured all but 3 percent of their wood requirements within the State.
- Saw log production rose from 514 million board feet in 1977 to 530 million board feet in 1984.
- Principal saw log species were hard maple, red oak, aspen, and soft maple.
- Average lumber output per sawmill rose 9 percent from 1977 to 1984.
- Michigan loggers cut 31.8 million board feet of veneer logs, 26 percent less than in 1977.
- Logging residue generated in 1984 was estimated to be the equivalent of 802 thousand cords of pulpwood, enough to supply three 500-ton/day pulp mills for 1 year.
- Eighty-eight percent or more of each residue class (coarse, fine, bark) generated at Michigan primary mills was used.

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PRIMARY TIMBER INDUSTRY—INDUSTRIAL ROUNDWOOD

In terms of volume of wood used, pulp mills dominate Michigan forest industry but sawmills far outnumber any other mill category. Based on studies since 1969, the active (operating) mill population has been in a narrow range from 347 in 1969 to 293 in 1975. Active mills declined by only 4 from 1977. By contrast, 1,530 mills operated in 1954. Small sawmills constituted most of the decline in active mills between 1954 and 1969. Of 316 primary mills operating in 1984, 275 were sawmills. Compared to 1977, 6 more large sawmills operated in 1984 as well as 8 more medium sawmills, but the number of small sawmills operating fell by 23.

Since at least 1954, the annual quantity of logs and bolts used per mill has increased. Most mills built since 1954 have been larger than average for their mill type, and most mills that closed were small and inefficient. Although the industry is scattered throughout the State, major mills are concentrated in the northern two-thirds of Michigan (fig. 1).

Michigan's timber industry shared in the national recovery from recession. National markets for wood products in 1984 were good because the U.S. was recovering from a recession. Housing starts were 1.745 million units, an increase of 2.4 percent from 1983 and the highest total since 1979. Wood and upholstered furniture manufacturers had a good year; new orders and shipments each totaled nearly $12 billion. U.S. lumber production in 1984 was 36.8 million board feet, 5.5 percent above the average for 1975 to 1984. Domestic paper and paperboard production reached a new high in the U.S. of 69 million tons, up 5.6 percent from the previous peak in 1983.

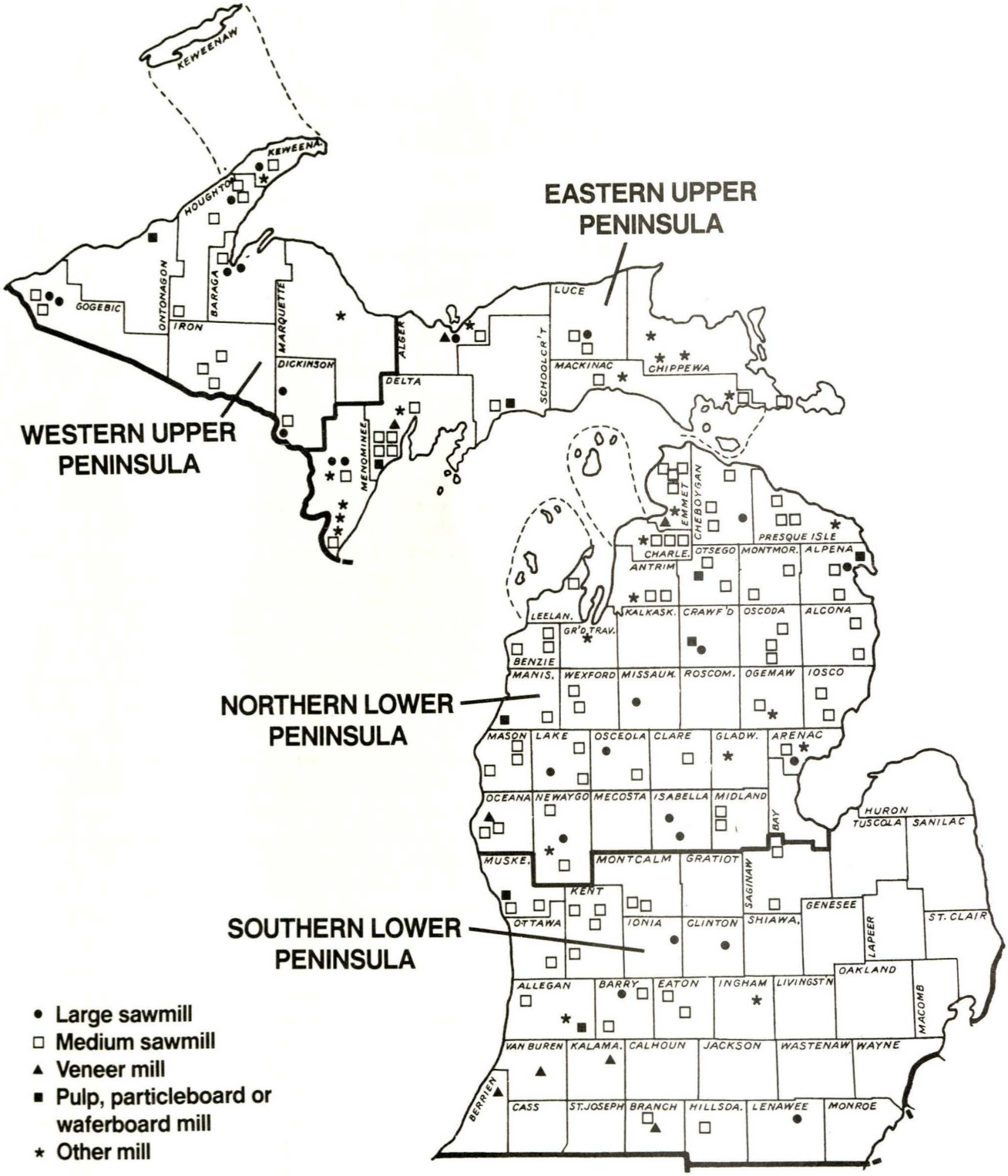

Figure 1.—*Active primary wood-using mills and forest survey units in Michigan, 1984. Sawmills are classed by volume of lumber produced in 1984: large = 5 million board feet or more; medium = 1 to 4.999 million board feet (smaller sawmills not shown). Forest survey units are the geographic areas used by the Forest Inventory and Analysis Project to report periodic inventories and use of the Nation's forest resources.*

Log and bolt receipts at active mills (excluding fuelwood and receipts at treating plants) were 230.6 million cubic feet, up 31 percent from 1977 and double the receipts in 1954. Hardwoods accounted for about four-fifths of the receipts.

Industrial roundwood production rose from 216.3 million cubic feet in 1977 to 284.2 million cubic feet in 1984. Annual production increases averaged 1.9 percent for softwoods and 4.7 percent for hardwoods. Industrial roundwood output climbed in every Unit except the Southern LP:

Survey Unit	Roundwood production 1977	1984	Change
	(Million cubic feet)		(Percent)
EUP	49.6	62.8	+27
WUP	63.3	78.4	+24
NLP	82.4	124.1	+51
SLP	21.0	18.9	-10
Total	216.3	284.2	+31

Marquette, Iron, Delta, Menominee, and Gogebic Counties each produced more than 10 million cubic feet of industrial roundwood.

From a volume standpoint, pulpwood strengthened its dominant market position between 1977 and 1984 while the saw-log position weakened but held firmly in second place. Industrial roundwood products Statewide in 1984 and 1977 ranked in order of output were:

Product	Roundwood Production 1977	1984
	(Percent)	
Pulpwood	54.6	61.3
Saw logs	41.0	32.1
Veneer logs	2.7	1.5
Other	1.7	5.1

Proportionally, industrial roundwood production shifted slightly to the Northern LP from the other Units between 1977 and 1984.

Aspen, hard maple, and red oak, the leading species cut, supplied 53 percent of the industrial roundwood harvest in 1984. Harvesting of each major species, except balsam fir, increased from 1977:

Survey Unit	Roundwood production 1977	1984	Change
	(Million cubic feet)		(Percent)
Aspen	68.4	91.9	+34
Hard maple	20.4	31.9	+56
Red oak	22.6	27.8	+23
Soft maple	13.9	19.8	+42
Jack pine	17.5	17.6	+1
Red pine	9.0	11.7	+30
Paper birch	6.0	8.5	+42
Spruce	5.0	7.9	+58
Balsam fir	9.2	7.8	-15
Cedar	3.7	7.7	+108
Other species	40.6	51.6	+27
Total	216.3	284.2	+31

Largest percentage gains since 1977 for primary species were in cedar, spruce, and hard maple.

PULPWOOD

During 1984 Michigan produced 2.40 million cords of pulpwood, which was a record high at that time. Ninety-two out of every 100 cords were roundwood (including chips from roundwood); the remainder was wood residue from sawmills, veneer mills, and other mills. In the late 1960's, residue became an important pulpwood source and has contributed more than 100 thousand cords annually since 1969.

In the late 1940's, hardwood accounted for about one-third of the roundwood cut. Since then, the hardwood proportion of roundwood has grown to about two-thirds of the total.

Annual harvests of aspen, the leading pulpwood species, have nearly quadrupled during the last 35 years. Harvesting of other hardwoods began after World War II and, by the late 1950's became an important segment of the pulpwood cut. The annual harvest of birch has doubled during the last decade. Major hardwood species cut for pulpwood in 1984 were:

Species	Hardwood pulpwood
	(Thousand cords)
Aspen	962
Hard maple	145
Soft maple	138
Red oak	126
Paper birch	79

Between 1946 and 1958, balsam fir was the leading softwood species for 9 years and hemlock was the leader for 3 years. Since 1958, pine has been the major softwood pulping species cut. After 1975 the annual pine harvest exceeded 250 thousand cords except for 1981. Composition of the 1984 pine cut was jack pine (64 percent), red pine (27 percent), and white pine (9 percent). During the last two decades, the annual harvest of balsam fir, hemlock, and spruce has not shown any definite trends.

About 4 out of 5 cords of Michigan pulpwood cut in 1984 remained in the State. Most (95 percent) of the exports went to Wisconsin. Principal exports were aspen, hard maple, jack pine, and spruce.

The Northern LP supplies more roundwood pulpwood than any other Unit although annual production there between 1980 and 1984 was less stable than in the UP. Counties furnishing more than 100,000 cords each were Marquette, Iron, Delta, and Menominee.

Nine Michigan mills (7 pulp, 1 particleboard, and 1 waferboard) received 2.00 million cords of pulpwood in 1984; only 3 percent came from out-of-State. Hardwood mill residue was the principal import. Receipts were strong for aspen, jack pine, red oak, and soft maple.

During the late 1940's, Michigan mills imported more than one-third of their pulpwood from Canada. Then Canadian imports began falling and have been nominal since 1969. Wisconsin has been the major source of imported wood since 1973.

SAW LOGS

Michigan loggers harvested 530 million board feet of saw logs in 1984, up 16 million board feet from 1977. Eighty-seven percent was hardwoods. Major species cut were:

Species	Saw log production volume (Million board feet, Int'l 1/4-inch rule)
Hard maple	115
Red oak	94
Aspen	85
Soft maple	47

Ten percent of the saw log volume was shipped to Wisconsin and Indiana. Hard maple was the primary export species.

Major production gains since 1977 were in hard maple (24 million board feet), cedar (11 million board feet), red oak (11 million board feet), and soft maple (11 million board feet). Demand for red oak in furniture was high. Gains were mainly in the Western UP for hard maple, in the Northern LP for cedar and red oak, and in the Western UP and Northern LP for soft maple.

Elm, aspen, and white pine production each declined more than 10 million board feet from 1977. Other significant declines were in jack and red pine. Elm saw log production changes since 1977 reflect the heavy destruction of elm in the Northern LP and Eastern UP and the spread of the disease in the Western UP:

Survey Unit	Elm saw log production	
	1977	1984
	(Thousand board feet, Int'l 1/4-inch rule)	
Eastern UP	7,301	437
Western UP	8,589	3,256
Northern LP	2,980	378
Southern LP	332	580

Saw log harvesting in the Northern LP and Western UP Units was more intensive in 1984 than in 1977. The Northern LP furnished 42 percent of the saw log volume, including 76 percent of the aspen, 68 percent of the red pine, and 57 percent of the red oak.

Leading saw-log producing counties were Gogebic, Marquette, and Luce. Sixteen counties each cut more than 10 million board feet.

In 1984, 275 active (operating) sawmills received 484 million board feet of saw logs compared with 457 million board feet received at 284 sawmills in 1977. Michigan imported a total of 7 million board feet of saw logs from Indiana, Wisconsin, and Ohio.

Average lumber output per sawmill rose 9 percent from 1977 to 1984. Output continues to rise because most mills that close are small, most new mills are larger than average, and other mills have improved their productivity. Northern LP was the leading lumber-producing Unit.

VENEER LOGS

Of the 31.8 million board feet of veneer logs cut in 1984 in Michigan, 35 percent remained in the State, 30 percent was shipped to Wisconsin, 24 percent was shipped to Canada, and the remainder was sent to Ohio, Indiana, Iowa, and Kentucky. Hard maple was the primary species cut followed by red oak, red pine, yellow birch, white pine, ash, and paper birch. Red pine and hard maple were the chief exports from Michigan. Top-producing counties were Luce, Houghton, Marquette, and Alger.

Veneer log production fell 11 million board feet from the 1977 level. Declines were concentrated in

aspen and yellow birch and were partially offset by significant gains in red pine, red oak, and hard maple. No red pine was harvested for veneer logs in 1977.

Eight Michigan veneer mills received 13.7 million board feet of logs and bolts, down 55 percent from 1977. Aspen accounted for most of the decline. Hard maple was the major species processed in Michigan, followed by red oak, white oak, and yellow birch. Michigan supplied four-fifths of the log volume to resident veneer mills; the remainder came from Indiana, Minnesota, Pennsylvania, Kentucky, Illinois, Ohio, and Wisconsin. White oak and red oak were the principal species imported.

OTHER PRODUCTS

Other industrial roundwood products (5 percent of all industrial roundwood) cut in Michigan in 1984 were poles, commercial posts, industrial fuelwood, charcoal wood, cabin logs, and shingle bolts. Industrial fuelwood accounted for 77 percent (161 thousand cords) of these other products. Two-thirds (69 percent) of the fuelwood was softwoods. Commercial posts (2.6 million) constituted another 18 percent of the other products; cedar was the leading post species. Nearly four-fifths of the posts were cut in the Eastern UP.

Residential fuelwood is a major nonindustrial product in Michigan; this study did not include sampling to estimate nonindustrial roundwood product output.

LOGGING RESIDUE

During 1984 loggers in Michigan generated an estimated 63.3 million cubic feet of logging residue. Logging residue includes all wood fiber left behind from trees cut during logging operations and not subsequently used. Total residue generated was equivalent to 802 thousand cords of pulpwood, enough wood to supply three 500-ton/day pulp mills for 1 year.

Six species accounted for two-thirds of the residue:

Species	Residue volume	
	(Million cubic feet)	(Percent of total)
Aspen	16.0	25
Hard maple	9.7	15
Red oak	4.8	8
Soft maple	4.5	7
Jack pine	4.2	7
Red pine	3.0	5

The Northern LP and the Western UP Units produced two-thirds of the residue:

Survey Unit	Residue volume	
	(Million cubic feet)	(Percent of total)
Eastern UP	15.9	25
Western UP	20.5	32
Northern LP	22.6	36
Southern LP	4.3	7
Total	63.3	100

Five counties—Marquette, Iron, Delta, Gogebic, and Menominee—each produced more than 3 million cubic feet of logging residue.

PRIMARY MILL RESIDUE

During 1984, Michigan primary wood-using mills (except the pulp, particleboard, and waferboard mills) generated 659 thousand green tons of coarse residue, 395 thousand green tons of fine residue, and 282 thousand green tons of bark. Much of this residue was used: 97 percent of the coarse, 88 percent of the fine, and 93 percent of the bark. Pulp mills consumed 56 percent of the coarse residue for fiber products, and industry and households consumed 34 percent for fuel. Fine residue was used primarily for industrial fuel, soil conditioners, mulch, livestock bedding, and poultry litter. Bark was used mainly for fuel.

Mills have found many additional markets for fine residue and bark since 1977. In 1977, only 66 percent of the fine residue and 69 percent of the bark were used. Most of the increased use by 1984 was for fuel:

Residue type	Residue used for fuel	
	1977	1984
	(Percent)	
Fine	17	39
Bark	25	56

Market proportions for coarse residue did not change greatly between 1977 and 1984.

Counties each producing more than 35 thousand green tons of coarse and fine residue in 1984 were Alger, Menominee, Baraga, Dickinson, Gogebic, and Houghton. Estimates of residue in 1984 by type of disposal for each county are found in the Appendix. Individuals or firms desiring residue can use the county data to pinpoint areas with the highest residue concentrations.

OUTLOOK

Growth of the U.S. economy, and particularly the midwestern economy, will be a major factor in determining the rate of growth in demand for Michigan industrial roundwood products. Changes in demand for housing, furniture, pallets, railroad ties, blocking, paper, and paperboard are all vitally important to Michigan's primary wood-using industry.

Between 1977 and 1984, the average annual increase in industrial roundwood production was 4 percent. Assuming we have no severe recessions, this average annual increase can probably be maintained during the next decade (1984-1994) in Michigan.

APPENDIX

STUDY METHODS

Data for this publication came from canvassing (with a formal questionnaire) all the known primary wood-using mills that use Michigan logs and bolts. The study was a cooperative effort of the Michigan Department of Natural Resources (MDNR) and the North Central Forest Experiment Station (NCFES). All canvassing in Michigan was done by the MDNR using mail and personal contacts; follow-up on nonrespondents was by mail, telephone, and personal contacts. MDNR utilization and marketing specialists provided estimates based on prior knowledge and contacts for a few Michigan mills that did not furnish complete data.

The NCFES mailed a formal questionnaire to all out-of-State mills using Michigan roundwood. Follow-up on nonrespondents was by mail and telephone.

Logging utilization factors were used to estimate the logging residue. These factors were determined from earlier Michigan logging studies by the NCFES.

The NCFES edited and compiled the data.

SAMPLING ERROR

Because all primary wood-using mills were canvassed, there is no sampling error for the roundwood products they used or the wood and bark residue they generated.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED

SOFTWOODS
Eastern white pine ..... *Pinus strobus*
Red pine ..... *Pinus resinosa*
Jack pine ..... *Pinus banksiana*
Spruce
White spruce ..... *Picea glauca*
Black spruce ..... *Picea mariana*
Balsam fir ..... *Abies balsamea*
Eastern hemlock ..... *Tsuga canadensis*
Tamarack ..... *Larix laricina*
Northern white-cedar ..... *Thuja occidentalis*
HARDWOODS
White oak
White oak ..... *Quercus alba*
Bur oak ..... *Quercus macrocarpa*
Chinkapin oak ..... *Quercus muehlenbergii*
Swamp white oak ..... *Quercus bicolor*
Red oak
Northern red oak ..... *Quercus rubra*
Black oak ..... *Quercus velutina*
Pin oak ..... *Quercus palustris*
Hickory
Bitternut hickory ..... *Carya cordiformis*
Pignut hickory ..... *Carya glabra*
Shagbark hickory ..... *Carya ovata*
Yellow birch ..... *Betula alleghaniensis*
Hard maple
Black maple ..... *Acer nigrum*
Sugar maple ..... *Acer saccharum*
Soft maple
Red maple ..... *Acer rubrum*
Silver maple ..... *Acer saccharinum*
American beech ..... *Fagus grandifolia*
Ash
Black ash ..... *Fraxinus nigra*
White ash ..... *Fraxinus americana*
Balsam poplar ..... *Populus balsamifera*
Aspen
Bigtooth aspen ..... *Populus grandidentata*
Quaking aspen ..... *Populus tremuloides*
Eastern cottonwood ..... *Populus deltoides*
American basswood ..... *Tilia americana*
Black walnut ..... *Juglans nigra*
Elm
American elm ..... *Ulmus americana*
Rock elm ..... *Ulmus thomasii*
Slippery elm ..... *Ulmus rubra*
Paper birch ..... *Betula papyrifera*

DEFINITION OF TERMS

Coarse mill residue.—Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Commercial forest land.—Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. Generally, this includes areas suitable for growing crops of industrial wood in excess of 20 cubic feet per acre annually.

Consumption.—The quantity of a commodity, such as pulpwood, utilized.

Fine mill residue.—Wood residue not suitable for chipping such as sawdust and veneer clippings.

Forest industry land.—Land owned by companies or individuals operating primary wood-using mills.

Forest survey unit.—A geographical area (group of counties) used by the Forest Inventory and Analysis Project to report periodic inventories and use of the Nation's forest resources.

Industrial roundwood products.—Saw logs, pulpwood, veneer logs, poles, commercial posts, piling, cooperage logs, industrial fuelwood, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood used for pulp or board products.

Industrial roundwood production.—The quantity of industrial roundwood harvested in a geographic area.

Industrial roundwood receipts.—The quantity of industrial roundwood received in a geographic area, regardless of the geographic source.

Logging residue.—The unused portions of trees cut or killed by logging.

National forest land.—Federal land that has been legally designated as national forest or purchase units, and other land under the administration of the USDA Forest Service.

Primary wood-using mills.—Mills receiving roundwood or chips from roundwood for processing into products.

Primary wood-using mill residue.—Wood materials (coarse and fine) and bark generated at manufacturing plants from roundwood processed into principal products. These residues include wood products (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

Roundwood.—Logs, bolts, or other round sections cut from trees (including chips from roundwood).

Standard cord.—A stack of wood bolts (or the equivalent) encompassing 128 cubic feet of wood, bark, and air space. A cord of pulpwood contains 79 cubic feet of wood and 49 cubic feet of bark and air space. A cord of fuelwood contains 70 cubic feet of wood and 58 cubic feet of bark and air space.

State land.—Land owned by States or land leased to these governmental units for 50 years or more.

TABLE TITLES

Table 1.—Number of active primary wood-using mills in Michigan, 1954, 1965, 1969, 1972, 1975, 1977, and 1984

Table 2.—Industrial roundwood production by species group and type of product, Michigan, 1984

Table 3.—Industrial roundwood receipts by type of mill in Michigan, 1954, 1965, 1972, 1977, and 1984

Table 4.—Industrial roundwood production by species group, forest survey unit, and county in Michigan, 1984

Table 5.—Michigan pulpwood production by species group, 1946-1984

Table 6.—Michigan pulpwood production by species group and destination, 1984

Table 7.—Pulpwood production from roundwood by species group, forest survey unit, and county, Michigan, 1984

Table 8.—Pulpwood receipts in Michigan by species group, 1946-1984

Table 9.—Pulpwood receipts in Michigan by area of origin, 1946-1984

Table 10.—Pulpwood receipts in Michigan by species group and area of origin, 1984

Table 11.—Saw log production and receipts in Michigan by species group, 1977 and 1984

Table 12.—Saw log production by forest survey unit, species group, and State of destination, Michigan, 1984

Table 13.—Saw log production by forest survey unit, county, and species group, Michigan, 1984

Table 14.—Saw log receipts in Michigan by forest survey unit, species group, and State of origin, 1984

Table 15.—Veneer log production and receipts in Michigan for selected years, 1946-1984

Table 16.—Veneer log production and receipts by species group in Michigan, 1977 and 1984

Table 17.—Veneer log and bolt production by species group and State or country of destination, Michigan, 1984

Table 18.—Veneer log production by forest survey unit, county, and species group, Michigan, 1984

Table 19.—Veneer log receipts in Michigan by area of origin for selected years, 1946-1984

Table 20.—Veneer log receipts in Michigan by species group and State of origin, 1984

Table 21.—Commercial post production by forest survey unit, county, and species group, Michigan, 1984

Table 22.—Pole production by forest survey unit, county, and species group, Michigan, 1984

Table 23.—Logging residue generated during industrial roundwood production by forest survey unit, county, and species group, Michigan, 1984

Table 24.—Residue produced at primary wood-using mills by type of material, type of use, and county, Michigan, 1984

Table 1.--Number of active primary wood-using mills in Michigan, 1954, 1965, 1969, 1972, 1975, 1977, and 1984

Kind of mill[1/]	1954	1965	1969	1972	1975	1977	1984
Sawmills							
Large[2/]	11	15	17	17	12	20	26
Medium[3/]	85	107	103	109	76	86	94
Small[4/]	1,296	266	187	157	174	178	155
Subtotal	1,392	388	307	283	262	284	275
Pulp mills	11	10	9	9	8	8	7
Veneer mills	23	12	12	9	8	9	8
Other mills	104	27	19	23	15	19	26
Total	1,530	437	347	324	293	320	316

[1/] Number of active small sawmills estimated for 1954.
[2/] Annual lumber production in excess of 5 million board feet.
[3/] Annual lumber production from 1 million to 5 million board feet.
[4/] Annual lumber production less than 1 million board feet.

Table 2.--Industrial roundwood production by species group and type of product, Michigan, 1984

Species group	All products	Sawlogs		Veneer logs		Pulpwood		Poles		Posts		Other products[1]
	MCF[2]	MBF[3]	MCF[2]	MBF[3]	MCF[2]	Cords[4]	MCF[2]	Pieces	MCF[2]	M pieces[5]	MCF[2]	MCF[2]
Softwoods												
Cedar	7,748	15,472	2,909	--	--	14,073	1,112	1,000	8	1,816	1,859	1,860
Balsam fir	7,832	2,930	547	--	--	78,431	6,191	426	1	215	219	874
Hemlock	4,966	5,454	907	--	--	46,869	3,702	--	--	--	--	357
Jack pine	17,628	6,621	1,241	--	--	189,304	14,939	--	--	152	155	1,293
Red pine	11,726	15,159	2,540	5,030	688	78,126	6,165	38,676	330	162	166	1,837
White pine	6,618	20,364	3,404	1,366	187	25,696	2,025	--	--	119	123	879
Spruce	7,860	3,833	719	--	--	76,739	6,062	426	1	100	102	976
Tamarack	907	269	49	--	--	9,658	760	--	--	--	--	98
Total	65,285	70,102	12,316	6,396	875	518,896	40,956	40,528	340	2,564	2,624	8,174
Hardwoods												
Ash	4,049	13,594	2,365	1,193	164	17,620	1,377	--	--	--	--	143
Aspen	91,894	85,293	14,996	270	35	961,774	75,979	--	--	--	--	884
Balsam poplar	3,557	3,028	524	--	--	37,645	2,962	--	--	--	--	71
Basswood	5,942	21,178	3,702	413	57	26,181	2,048	--	--	--	--	135
Beech	5,417	20,318	3,403	729	100	23,419	1,837	--	--	--	--	77
Paper birch	8,463	10,456	1,826	1,193	163	79,348	6,264	--	--	--	--	210
Yellow birch	5,724	12,559	2,107	2,870	393	40,143	3,167	--	--	--	--	57
Cottonwood	591	2,590	442	400	54	1,107	89	--	--	--	--	6
Elm	4,887	4,651	802	141	20	50,918	4,014	--	--	--	--	51
Hickory	288	1,358	222	4	--	716	58	--	--	--	--	8
Hard maple	31,931	114,709	18,593	9,774	1,336	144,753	11,413	--	--	--	--	589
Soft maple	19,756	46,889	8,228	347	47	138,171	10,911	--	--	--	--	570
Red oak	27,769	93,953	16,484	6,414	875	126,109	9,963	--	--	--	--	447
White oak	6,426	21,726	3,811	980	135	29,712	2,322	--	--	--	--	158
Walnut	220	1,139	187	253	33	--	--	--	--	--	--	--
Other hardwoods	1,998	6,109	1,053	376	49	11,142	863	--	--	--	--	33
Total	218,912	459,550	78,745	25,357	3,461	1,688,758	133,267	--	--	--	--	3,439
All species	284,197	529,652	91,061	31,753	4,336	2,207,654	174,223	40,528	340	2,564	2,624	11,613

[1] Includes industrial fuelwood, charcoal wood, cabin logs, and shingle bolts.

[2] Thousand cubic feet.

[3] Thousand board feet, International 1/4-inch rule.

[4] Standard cord contains 128 cubic feet including wood, bark, and air space.

[5] Thousand pieces.

Table 3.--Industrial roundwood receipts by type of mill in Michigan, 1954, 1965, 1972, 1977, and 1984

(In million cubic feet)

Kind of mill	All species					Softwoods					Hardwoods				
	1954	1965	1972	1977	1984	1954	1965	1972	1977	1984	1954	1965	1972	1977	1984
Pulp mills[1/]	32.3	65.2	66.0	82.4	143.2	14.5	17.7	15.6	28.2	30.4	17.8	47.5	50.4	54.2	112.8
Sawmills	70.3	57.4	64.0	78.7	83.2	16.5	5.7	8.3	10.5	10.3	53.8	51.7	55.7	68.2	72.9
Other mills[2/]	13.1	12.5	15.7	15.0	4.2	3.6	4.9	4.2	3.4	2.3	9.5	7.6	11.5	11.6	1.9
Total	115.7	135.1	145.7	176.1	230.6	34.6	28.3	28.1	42.1	43.0	81.1	106.8	117.6	134.0	187.6

[1/] Includes flakeboard plants in 1984 formerly reported in "other mills" category.

[2/] Does not include treating plants or fuelwood receipts.

Table 4.--Industrial roundwood production by species group, Forest Survey Unit, and county, in Michigan, 1984

(In thousand cubic feet)

Unit and county	All species	Species group												
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood	Beech
E. Upper Peninsula														
Alger	8,540	525	360	361	280	425	403	440	33	61	534	240	128	935
Chippewa	4,795	210	155	87	887	531	183	476	27	7	1,130	47	30	250
Delta	14,689	1,390	1,432	371	1,236	1,318	644	1,186	123	111	2,496	571	313	326
Luce	6,121	24	149	230	458	300	160	342	15	6	727	42	21	1,159
Mackinac	6,687	491	369	206	212	301	124	531	34	37	2,075	192	118	217
Menominee	12,475	1,917	1,443	617	261	349	579	643	129	153	3,312	377	276	189
Schoolcraft	9,491	730	443	427	1,978	1,126	386	543	102	34	748	241	153	393
Total	62,798	5,287	4,351	2,299	5,312	4,350	2,479	4,161	463	409	11,022	1,710	1,039	3,469
W. Upper Peninsula														
Baraga	9,661	114	137	788	514	114	125	129	30	72	2,703	7	123	--
Dickinson	8,888	315	671	228	188	222	272	657	68	47	3,981	248	358	1
Gogebic	10,736	34	152	308	180	213	236	283	3	359	1,232	2	504	--
Houghton	5,674	33	85	139	285	58	85	80	15	79	1,037	0	107	--
Iron	14,715	150	880	193	245	259	531	986	93	149	4,826	147	236	114
Keweenaw	2,120	80	17	17	--	--	312	52	--	5	41	--	10	--
Marquette	19,353	670	1,159	778	2,341	894	1,303	1,228	228	76	2,725	594	425	346
Ontonagon	7,207	19	83	113	85	180	158	71	4	116	2,140	5	405	--
Total	78,354	1,415	3,184	2,564	3,838	1,940	3,022	3,486	441	903	18,685	1,003	2,168	461
N. Lower Peninsula														
Alcona	6,505	298	7	--	148	130	20	1	--	65	4,222	190	23	17
Alpena	3,355	260	12	--	93	44	44	14	--	40	2,156	84	6	4
Antrim	1,525	1	--	7	2	8	4	--	--	36	657	1	223	69
Arenac	329	39	--	--	2	2	--	--	--	12	157	2	7	--
Bay	67	--	--	--	--	0	--	--	--	9	17	--	3	--
Benzie	2,345	1	--	--	3	36	2	--	--	64	722	--	127	71
Charlevoix	2,401	27	3	3	5	15	6	1	--	67	1,389	5	212	83
Cheboygan	7,498	49	52	27	181	132	58	25	1	87	5,001	76	258	46
Clare	5,041	6	--	--	155	232	68	--	--	34	2,819	6	9	19
Crawford	3,459	1	--	--	957	239	23	--	--	--	1,351	3	57	19
Emmet	2,465	33	5	4	4	107	4	7	1	89	1,249	21	184	91
Gladwin	2,970	16	--	35	152	114	49	--	--	40	1,913	31	8	--
Grand Traverse	1,470	39	3	--	25	31	5	--	--	22	728	1	36	15
Iosco	2,873	1	--	--	731	499	74	--	--	64	719	36	14	4
Isabella	1,121	2	--	--	--	7	6	--	1	30	571	--	8	3
Kalkaska	2,194	9	--	2	356	122	18	--	--	6	1,008	--	100	14
Lake	8,195	--	--	--	291	128	4	--	--	80	2,922	3	63	23
Leelanau	1,014	--	--	17	--	3	1	--	--	110	204	--	177	108
Manistee	5,169	2	--	1	71	131	4	--	--	112	1,471	--	138	167
Mason	3,729	--	--	--	18	17	1	--	--	47	1,901	--	39	21
Mecosta	4,194	2	--	--	17	102	73	--	--	72	2,972	1	51	4
Midland	1,530	--	--	--	--	65	52	--	--	47	785	24	19	12
Missaukee	4,713	15	--	--	120	145	51	--	--	56	3,074	1	46	13
Montmorency	6,555	27	4	--	673	126	13	17	--	103	3,744	60	100	37
Newaygo	7,525	--	--	--	476	930	163	--	--	66	2,510	5	44	65
Oceana	3,032	1	--	1	9	12	11	--	--	42	1,011	1	12	67
Ogemaw	4,787	--	1	--	1,072	157	18	--	--	68	1,910	28	27	3
Osceola	4,198	6	--	--	12	8	10	--	--	50	2,560	3	45	29
Oscoda	5,973	--	3	--	1,071	299	53	1	--	44	3,200	145	31	7
Otsego	3,182	9	--	4	219	184	40	9	--	24	1,633	25	192	32
Presque Isle	4,673	173	183	--	114	47	9	134	--	65	2,839	78	49	16
Roscommon	5,587	20	24	--	1,139	466	179	4	--	46	2,269	14	6	--
Wexford	4,425	9	--	--	290	704	12	--	--	53	1,256	0	64	30
Total	124,099	1,046	297	101	8,406	5,242	1,075	213	3	1,750	60,940	844	2,378	1,089

(Table 4 continued on next page)

(Table 4 continued)

Unit and county	All species	Species group												
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood	Beech
S. Lower Peninsula														
Allegan	2,143	--	--	--	--	18	6	--	--	99	99	--	17	66
Barry	1,491	--	--	--	5	28	--	--	--	46	84	--	32	66
Berrien	392	--	--	--	--	--	--	--	--	18	--	--	10	26
Branch	509	--	--	--	--	--	--	--	--	50	1	--	6	--
Calhoun	564	--	--	--	3	3	--	--	--	63	3	--	32	4
Cass	895	--	--	--	--	--	--	--	--	76	--	--	44	20
Clinton	56	--	--	--	--	--	--	--	--	6	--	--	2	--
Eaton	212	--	--	--	--	--	--	--	--	45	3	--	22	17
Genessee	284	--	--	--	--	--	--	--	--	22	--	--	9	6
Gratiot	211	--	--	--	--	--	--	--	--	13	6	--	8	--
Hillsdale	309	--	--	--	--	--	--	--	--	25	--	--	5	--
Huron	43	--	--	--	--	--	--	--	--	5	14	--	--	--
Ingham	242	--	--	--	--	1	--	--	--	22	4	--	8	4
Ionia	314	--	--	--	--	--	--	--	--	13	1	--	17	19
Jackson	803	--	--	--	--	--	--	--	--	35	1	--	8	--
Kalamazoo	365	--	--	--	--	3	2	--	--	21	11	--	2	10
Kent	809	--	--	--	--	1	4	--	--	31	44	--	21	15
Lapeer	108	--	--	--	--	--	--	--	--	8	--	--	4	3
Lenawee	260	--	--	--	--	--	--	--	--	19	--	--	11	3
Livingston	396	--	--	--	--	--	--	--	--	22	1	--	3	--
Macomb	126	--	--	--	--	--	--	--	--	5	--	--	1	2
Monroe	209	--	--	--	--	--	--	--	--	5	--	--	5	--
Montcalm	1,004	--	--	--	--	51	9	--	--	24	247	--	12	7
Muskegon	2,316	--	--	2	11	23	11	--	--	37	295	--	0	26
Oakland	130	--	--	--	--	--	1	--	--	10	--	--	1	2
Ottawa	968	--	--	--	53	60	3	--	--	17	318	--	6	45
Saginaw	169	--	--	--	--	--	--	--	--	16	2	--	1	--
St. Clair	169	--	--	--	--	--	1	--	--	15	--	--	3	6
St. Joseph	1,066	--	--	--	--	--	--	--	--	45	23	--	15	2
Sanilac	63	--	--	--	--	--	1	--	--	10	9	--	1	--
Shiawassee	246	--	--	--	--	--	--	--	--	33	1	--	25	8
Tuscola	158	--	--	--	--	--	--	--	--	21	26	--	5	--
Van Buren	1,312	--	--	--	--	6	4	--	--	79	54	--	14	36
Washtenaw	592	--	--	--	--	--	--	--	--	30	--	--	6	4
Wayne	12	--	--	--	--	--	--	--	--	1	--	--	1	1
Total	18,946	--	--	2	72	194	42	--	--	987	1,247	--	357	398
State Total	284,197	7,748	7,832	4,966	17,628	11,726	6,618	7,860	907	4,049	91,894	3,557	5,942	5,417

(Table 4 continued on next page)

(Table 4 continued)

Unit and county	Species group										
	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
E. Upper Peninsula											
Alger	284	294	--	295	--	2,013	826	16	--	--	87
Chippewa	66	91	--	18	--	419	125	51	--	--	5
Delta	832	399	--	128	8	832	895	20	--	--	58
Luce	74	112	--	25	--	1,809	456	7	--	--	5
Mackinac	337	143	--	30	--	765	401	83	--	--	21
Menominee	645	237	--	74	--	786	354	99	4	--	31
Schoolcraft	392	259	--	66	--	727	696	1	--	--	46
Total	2,630	1,535	--	636	8	7,351	3,753	277	4	--	253
W. Upper Peninsula											
Baraga	234	625	--	1,048	--	2,078	667	53	--	--	100
Dickinson	726	68	--	86	--	384	265	78	--	--	25
Gogebic	50	979	--	1,017	--	4,291	692	38	--	--	163
Houghton	95	405	--	254	--	2,171	455	247	--	--	44
Iron	667	671	--	979	--	2,545	809	98	--	--	137
Keweenaw	73	117	--	1	--	747	292	355	--	--	1
Marquette	1,090	698	--	122	--	3,185	1,078	334	--	--	79
Ontonagon	74	480	--	407	--	1,863	897	83	3	--	21
Total	3,009	4,043	--	3,914	--	17,264	5,155	1,286	3	--	570
N. Lower Peninsula											
Alcona	167	2	--	--	--	96	220	768	129	--	2
Alpena	162	--	--	--	--	22	171	219	24	--	--
Antrim	11	6	--	15	--	371	65	47	--	--	2
Arenac	2	--	1	--	--	7	46	50	2	--	--
Bay	0	--	20	--	--	0	17	--	1	--	--
Benzie	37	8	--	3	--	412	449	379	1	--	30
Charlevoix	33	7	--	3	--	297	143	101	--	--	1
Cheboygan	409	9	3	2	--	526	291	259	3	--	3
Clare	98	2	1	--	--	28	295	1,008	246	--	15
Crawford	9	--	--	--	--	276	37	366	117	--	4
Emmet	58	9	--	3	--	382	90	98	1	--	25
Gladwin	57	--	21	4	--	33	234	234	28	--	1
Grand Traverse	18	1	--	1	--	67	92	283	97	--	6
Iosco	89	--	94	--	--	13	308	198	25	--	4
Isabella	20	--	39	--	--	10	113	225	85	--	1
Kalkaska	22	9	--	2	--	217	64	205	22	--	18
Lake	87	4	1	9	--	87	508	3,074	854	--	57
Leelanau	1	1	--	--	--	199	29	162	2	--	--
Manistee	179	42	3	49	--	370	685	1,254	341	--	149
Mason	77	2	2	--	--	71	485	870	170	--	8
Mecosta	51	6	--	7	--	112	182	400	112	--	30
Midland	99	--	61	--	--	2	166	150	48	--	--
Missaukee	91	1	--	1	--	119	521	368	81	--	10
Montmorency	191	--	--	--	1	419	175	786	71	--	8
Newaygo	13	2	15	3	3	154	590	1,917	546	--	23
Oceana	57	3	18	1	1	115	345	1,122	169	--	34
Ogemaw	134	--	--	--	--	119	298	794	154	--	4
Osceola	83	9	1	1	--	216	417	640	86	--	22
Oscoda	96	1	--	--	--	286	106	531	89	--	10
Otsego	40	5	--	10	--	476	74	201	3	--	2
Presque Isle	272	5	--	--	--	149	281	225	34	--	--
Roscommon	95	2	--	--	--	139	221	801	160	--	2
Wexford	43	9	--	15	--	472	904	437	101	--	26
Total	2,801	145	280	129	5	6,262	8,622	18,172	3,802	--	497

(Table 4 continued on next page)

(Table 4 continued)

Unit and county	Species group										
	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
S. Lower Peninsula											
Allegan	--	--	32	54	23	86	297	916	332	4	94
Barry	--	--	14	18	26	166	202	606	158	3	37
Berrien	--	--	41	8	5	85	23	101	20	--	55
Branch	--	--	27	5	9	18	155	93	115	8	22
Calhoun	--	--	2	4	10	21	86	209	96	1	27
Cass	--	1	3	24	29	50	109	301	85	20	133
Clinton	--	--	--	--	1	3	11	23	5	5	--
Eaton	--	--	2	8	7	53	27	7	13	4	4
Genessee	--	--	1	3	--	20	32	128	60	3	--
Gratiot	--	--	--	--	--	13	36	108	27	--	--
Hillsdale	--	--	7	2	1	52	45	113	48	6	5
Huron	5	--	15	--	--	--	3	--	--	--	1
Ingham	--	--	15	1	1	26	26	53	48	4	29
Ionia	--	--	--	--	4	25	28	168	16	7	16
Jackson	--	--	2	3	21	6	49	525	114	8	31
Kalamazoo	--	--	11	8	9	11	60	144	54	--	19
Kent	--	--	--	2	7	93	94	396	82	2	17
Lapeer	--	--	2	--	--	20	15	29	27	--	--
Lenawee	--	--	1	2	5	29	25	109	46	8	2
Livingston	--	--	--	3	7	6	44	205	98	2	5
Macomb	--	--	3	8	--	6	12	40	48	--	1
Monroe	--	--	11	1	7	8	10	118	26	12	6
Montcalm	--	--	--	4	2	24	56	460	98	1	9
Muskegon	9	--	--	--	--	40	236	1,296	303	--	27
Oakland	--	--	1	5	4	3	11	55	35	--	2
Ottawa	2	--	8	5	3	27	80	270	62	2	7
Saginaw	1	--	45	--	--	8	28	26	37	--	5
St. Clair	--	--	12	--	--	9	14	35	74	--	--
St. Joseph	--	--	--	3	62	23	93	609	73	74	44
Sanilac	3	--	3	--	--	2	11	9	14	--	--
Shiawassee	--	--	5	--	2	27	23	78	38	1	5
Tuscola	3	--	22	--	--	16	47	9	7	1	1
Van Buren	--	--	24	33	20	66	192	514	202	5	63
Washtenaw	--	--	1	3	9	11	45	279	154	39	11
Wayne	--	--	1	1	1	1	1	2	2	--	--
Total	23	1	311	208	275	1,054	2,226	8,034	2,617	220	678
State Total	8,463	5,724	591	4,887	288	31,931	19,756	27,769	6,426	220	1,998

Table 5.--Michigan pulpwood production by species group, 1946-1984

(In thousand standard cords, unpeeled)[1/]

Year	Total	Roundwood								Residue	
		Pine	Balsam fir	Hemlock	Spruce	Tamarack	Aspen	Birch	Other hardwoods	Soft-woods	Hard-woods
1946	845	85	117	250	127	3	246	9	8	--	--
1947	679	86	139	149	134	2	153	6	10	--	--
1948	728	89	163	132	133	2	182	7	19	--	1
1949	519	38	124	62	97	2/	168	5	25	--	--
1950	657	66	123	84	99	2/	251	6	28	--	--
1951	935	103	140	169	110	2/	371	8	34	--	--
1952	762	58	153	125	120	2/	275	8	23	--	--
1953	724	67	102	71	81	2/	365	5	33	--	--
1954	797	43	137	62	119	1	404	5	26	--	--
1955	808	38	122	36	111	2/	459	4	38	--	--
1956	966	67	119	88	115	2/	537	4	36	--	--
1957	980	70	147	61	118	2/	521	7	56	--	--
1958	900	149	115	35	86	1	434	1	79	--	--
1959	1,053	197	109	39	83	3	523	4	90	1	4
1960	1,237	188	135	46	108	5	669	9	75	--	2
1961	1,106	156	115	44	96	4	558	16	96	2	19
1962	1,223	184	104	57	86	4	601	21	144	2	20
1963	1,297	174	121	62	88	3	662	23	131	4	29
1964	1,322	198	85	59	72	3	674	38	146	5	42
1965	1,365	224	74	64	65	2	704	32	149	5	46
1966	1,571	251	88	99	74	1	777	12	194	4	71
1967	1,344	193	90	60	75	1	646	11	200	3	65
1968	1,168	205	62	45	39	2	540	13	172	6	84
1969	1,302	207	44	63	39	2	606	23	196	8	114
1970	1,406	239	67	69	51	3	596	33	196	10	142
1971	1,267	235	53	43	45	2	548	23	196	13	109
1972	1,401	229	60	50	38	7[3/]	529	36	309	21	122
1973	1,585	204	68	58	46	5	603	59	365	28	149
1974	1,843	259	74	52	40	7[3/]	706	85	424	17	179
1975	1,280	235	74	50	45	5[3/]	436	36	217	22	160
1976	1,541	281	75	79	32	6[3/]	491	69	320	24	164
1977	1,595	262	94	62	48	10[3/]	532	62	333	21	171
1978	1,675	277	87	48	42	8[3/]	586	90	390	17	130
1979[4/]	1,981	350	85	45	39	10[3/]	709	109	456	15	163
1980[4/]	1,969	268	109	58	58	13[3/]	705	104	501	15	138
1981[4/]	1,838	237	104	39	45	17[3/]	652	105	473	15	151
1982[4/]	1,751	262	105	56	68	22[3/]	632	89	396	13	108
1983[4/]	2,157	256	101	48	78	31[3/]	889	130	451	21	152
1984[4/]	2,398	293	78	47	77	24[3/]	962	120	607	23	167

[1/] 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.
[2/] Less than 500 cords.
[3/] Includes cedar.
[4/] Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard.

Table 6.--Michigan pulpwood production by species group and destination, 1984

(In thousand standard cords, unpeeled)[1/]

Species group	Total	Destination of wood		
		Michigan	Wisconsin	Canada
Roundwood[2/]				
Pine	293	233	60	--
Balsam fir	78	45	25	8
Hemlock	47	44	3	--
Spruce	77	37	26	14
Tamarack, Cedar	24	22	2	--
Aspen	962	822	140	--
Birch	119	97	22	--
Other hardwoods	608	494	114	--
Total	2,208	1,794	392	22
Residue				
Softwoods	23	10	13	--
Hardwoods	167	130	37	--
Total	190	140	50	--
All material	2,398	1,934	442	22

[1/] 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

[2/] Includes chips from roundwood.

Table 7.--Pulpwood production from roundwood by species group, Forest Survey Unit and county, Michigan, 1984

(In standard cords, unpeeled)[1/]

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
E. Upper Peninsula													
Alger	52,781	1,277	2,819	2,519	3,089	3,388	2,604	4,040	407	484	6,086	2,237	1,251
Chippewa	44,433	541	1,949	1,052	11,104	4,322	894	5,984	344	106	11,509	598	326
Delta	132,266	2,304	14,709	3,763	12,764	11,532	4,979	10,914	1,309	586	26,987	6,401	3,137
Luce	25,917	125	1,863	2,720	5,790	713	317	3,954	193	62	5,798	516	260
Mackinac	55,796	716	3,322	2,377	2,302	1,652	619	4,594	278	294	21,146	1,884	940
Menominee	108,281	2,518	15,379	7,185	3,235	3,795	2,647	7,546	1,304	512	36,526	4,366	1,768
Schoolcraft	90,813	1,725	4,727	4,859	24,273	10,749	2,553	5,503	1,147	330	8,853	2,958	1,872
Total	510,287	9,206	44,768	24,475	62,557	36,151	14,613	42,535	4,982	2,374	116,905	18,960	9,554
W. Upper Peninsula													
Baraga	84,560	790	1,303	8,576	6,163	1,409	632	1,195	338	471	32,598	--	733
Dickinson	82,509	607	6,493	2,802	2,290	1,674	949	6,519	642	241	42,328	2,268	1,993
Gogebic	72,287	--	1,333	1,176	2,205	2,601	1,921	2,415	--	2,444	13,730	--	1,346
Houghton	29,836	--	702	1,105	3,458	639	23	469	156	441	10,599	--	99
Iron	142,161	788	8,873	1,684	2,853	2,754	2,301	10,355	876	1,623	56,983	1,736	1,090
Keweenaw	93	--	--	65	--	--	--	13	--	--	--	--	--
Marquette	161,846	2,682	11,600	6,705	27,267	6,223	3,992	11,855	2,625	681	31,835	7,411	4,167
Ontonagon	61,233	--	545	281	991	2,187	823	330	39	285	24,071	--	3,424
Total	634,525	4,867	30,849	22,394	45,227	17,487	10,641	33,151	4,676	6,186	212,144	11,415	12,852
N. Lower Peninsula													
Alcona	63,724	--	95	--	1,643	513	21	17	--	579	46,154	1,788	67
Alpena	31,798	--	116	--	1,158	--	--	56	--	427	22,531	1,015	42
Antrim	8,765	--	--	--	34	101	--	--	--	67	6,342	23	143
Arenac	714	--	--	--	20	--	--	--	--	3	650	31	--
Bay	64	--	--	--	--	--	--	--	--	--	64	--	--
Benzie	13,302	--	--	--	37	399	1	--	--	167	6,041	--	208
Charlevoix	20,637	--	--	--	84	--	--	--	--	367	14,265	88	138
Cheboygan	70,317	--	537	--	1,854	67	--	160	--	804	50,975	781	354
Clare	28,756	--	--	--	264	160	7	--	--	16	24,652	52	--
Crawford	36,065	--	--	--	10,336	1,515	58	--	--	10	16,337	48	48
Emmet	13,134	--	12	--	57	1,230	--	11	--	150	8,931	64	38
Gladwin	19,619	--	--	--	1,456	17	--	--	--	63	16,393	263	1
Grand Traverse	14,021	--	42	--	329	330	5	--	--	104	8,374	--	104
Iosco	14,892	--	--	--	4,418	894	24	--	--	310	5,977	194	31
Isabella	6,216	--	--	--	--	--	--	--	--	--	5,504	--	--
Kalkaska	21,078	--	--	--	4,401	1,354	13	--	--	48	11,801	--	101
Lake	61,939	--	--	--	3,681	1,615	35	--	--	223	28,147	--	--
Leelanau	1,273	--	--	--	--	--	--	--	--	--	693	--	--
Manistee	48,374	--	--	--	888	1,607	36	--	--	735	17,586	--	1,042
Mason	35,653	--	--	--	222	222	8	--	--	208	23,107	--	193
Mecosta	38,604	--	--	--	162	648	5	--	--	35	34,760	--	--
Midland	8,797	--	--	--	--	--	--	--	--	104	7,029	313	--
Missaukee	45,407	--	--	--	1,501	1,377	--	--	--	96	36,325	4	56
Montmorency	61,573	--	--	--	8,027	372	--	--	--	737	37,090	624	274
Newaygo	40,272	--	--	--	4,924	2,764	62	--	--	89	21,362	--	35
Oceana	19,967	--	--	--	114	114	4	--	--	70	11,942	--	--
Ogemaw	41,844	--	11	--	10,510	676	20	--	--	396	18,494	269	35
Osceola	34,846	--	--	--	155	41	--	--	--	67	25,862	2	3
Oscoda	52,061	--	33	--	9,570	1,329	46	11	--	337	31,526	510	63
Otsego	20,852	--	--	--	2,411	1,391	20	--	--	120	13,005	184	146
Presque Isle	43,132	--	1,802	--	1,406	69	--	743	--	712	27,982	943	91
Roscommon	42,798	--	166	--	9,188	857	15	55	--	140	24,331	74	--
Wexford	43,853	--	--	--	1,696	3,852	27	--	--	222	15,466	--	208
Total	1,004,347	--	2,814	--	80,546	23,514	407	1,053	--	7,406	619,698	7,270	3,421

(Table 7 continued on next page)

(Table 7 continued)

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
S. Lower Peninsula													
Allegan	13,106	--	--	--	--	--	--	--	--	707	1,171	--	168
Barry	5,650	--	--	--	72	72	3	--	--	256	977	--	60
Berrien	--	--	--	--	--	--	--	--	--	--	--	--	--
Branch	--	--	--	--	--	--	--	--	--	--	--	--	--
Calhoun	516	--	--	--	45	45	2	--	--	--	16	--	--
Cass	624	--	--	--	--	--	--	--	--	--	--	--	--
Clinton	--	--	--	--	--	--	--	--	--	--	--	--	--
Eaton	18	--	--	--	--	--	--	--	--	--	18	--	--
Genessee	--	--	--	--	--	--	--	--	--	--	--	--	--
Gratiot	--	--	--	--	--	--	--	--	--	--	--	--	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	--	--	--
Huron	--	--	--	--	--	--	--	--	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--	--	--	--	--	--
Kalamazoo	1,726	--	--	--	9	9	--	--	--	97	96	--	23
Kent	474	--	--	--	10	10	--	--	--	1	384	--	--
Lapeer	--	--	--	--	--	--	--	--	--	--	--	--	--
Lenawee	--	--	--	--	--	--	--	--	--	--	--	--	--
Livingston	--	--	--	--	--	--	--	--	--	--	--	--	--
Macomb	--	--	--	--	--	--	--	--	--	--	--	--	--
Monroe	--	--	--	--	--	--	--	--	--	--	--	--	--
Montcalm	2,783	--	--	--	10	10	--	--	--	8	2,212	--	--
Muskegon	16,479	--	--	--	133	133	4	--	--	127	3,213	--	--
Oakland	--	--	--	--	--	--	--	--	--	--	--	--	--
Ottawa	8,420	--	--	--	685	685	26	--	--	102	4,016	--	18
Saginaw	--	--	--	--	--	--	--	--	--	--	--	--	--
St. Clair	--	--	--	--	--	--	--	--	--	--	--	--	--
St. Joseph	2,071	--	--	--	--	--	--	--	--	--	244	--	--
Sanilac	--	--	--	--	--	--	--	--	--	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	--	--	--
Tuscola	--	--	--	--	--	--	--	--	--	--	--	--	--
Van Buren	6,628	--	--	--	10	10	--	--	--	356	680	--	85
Washtenaw	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	58,495	--	--	--	974	974	35	--	--	1,654	13,027	--	354
State Total	2,207,654	14,073	78,431	46,869	189,304	78,126	25,696	76,739	9,658	17,620	961,774	37,645	26,181

(Table 7 continued on next page)

1/ 128 cubic feet, consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

(Table 7 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
E. Upper Peninsula												
Alger	2,249	3,046	2,379	--	3,351	--	6,834	4,047	145	--	--	529
Chippewa	596	749	505	--	147	--	1,808	1,304	523	--	--	72
Delta	3,421	7,923	4,079	--	1,401	--	6,590	8,844	31	7	--	585
Luce	387	851	367	--	317	--	685	919	34	--	--	46
Mackinac	1,644	2,631	1,352	--	279	--	4,955	3,731	885	--	--	195
Menominee	2,031	6,285	2,509	--	575	--	5,893	3,394	385	44	--	384
Schoolcraft	2,330	4,377	2,728	--	707	--	4,122	6,624	16	5	--	355
Total	12,658	25,862	13,919	--	6,777	--	30,887	28,863	2,019	56	--	2,166
W. Upper Peninsula												
Baraga	--	1,749	3,590	--	12,853	--	7,525	3,686	111	--	--	838
Dickinson	16	7,193	636	--	530	--	2,044	2,887	145	10	--	242
Gogebic	--	301	5,533	--	10,377	--	20,116	4,645	200	--	--	1,944
Houghton	--	719	971	--	2,232	--	5,700	1,529	512	5	--	477
Iron	1,448	6,155	5,557	--	10,973	--	16,716	7,887	111	8	--	1,390
Keweenaw	--	--	--	--	--	--	--	--	--	--	--	15
Marquette	4,295	11,609	5,310	--	1,196	--	11,712	9,269	618	8	--	786
Ontonagon	--	615	3,655	--	3,812	--	10,511	9,072	380	--	--	212
Total	5,759	28,341	25,252	--	41,973	--	74,324	38,975	2,077	31	--	5,904
N. Lower Peninsula												
Alcona	103	2,002	--	--	--	--	1,054	2,295	6,640	738	--	15
Alpena	63	1,950	--	--	--	--	201	1,951	2,062	226	--	--
Antrim	98	20	19	--	10	--	1,142	135	592	--	--	39
Arenac	--	--	--	--	--	--	1	9	--	--	--	--
Bay	--	--	--	--	--	--	--	--	--	--	--	--
Benzie	104	355	21	--	52	--	941	3,140	1,616	22	--	198
Charlevoix	141	407	83	--	--	--	2,246	1,612	1,189	--	--	17
Cheboygan	343	3,797	75	--	--	--	5,051	2,844	2,637	38	--	--
Clare	--	336	--	--	--	--	21	446	2,074	728	--	--
Crawford	145	10	--	--	--	--	3,279	168	2,937	1,125	--	49
Emmet	141	88	23	--	--	--	1,335	280	719	2	--	53
Gladwin	1	133	--	104	--	--	333	464	355	36	--	--
Grand Traverse	104	188	--	--	--	--	104	522	2,717	1,040	--	58
Iosco	47	777	--	--	--	--	80	1,281	774	85	--	--
Isabella	--	--	--	--	--	--	--	89	299	324	--	--
Kalkaska	40	111	61	--	--	--	1,229	225	1,345	288	--	61
Lake	--	750	--	--	--	--	161	3,316	19,815	4,099	--	97
Leelanau	--	--	--	--	--	--	21	74	485	--	--	--
Manistee	1,355	2,090	521	--	625	--	1,988	5,249	10,496	2,953	--	1,203
Mason	--	970	--	--	--	--	156	5,209	3,991	1,291	--	76
Mecosta	--	35	--	--	--	--	45	967	1,603	344	--	--
Midland	--	833	--	417	--	--	1	73	22	5	--	--
Missaukee	8	215	--	--	--	--	382	4,563	668	151	--	61
Montmorency	293	2,078	--	--	--	--	3,557	1,244	6,678	493	--	106
Newaygo	104	89	--	--	--	--	330	3,107	5,614	1,792	--	--
Oceana	--	644	--	--	--	--	95	2,353	3,728	903	--	--
Ogemaw	44	1,217	--	--	--	--	1,214	1,473	6,072	1,383	--	30
Osceola	8	789	5	--	--	--	251	3,647	3,191	814	--	11
Oscoda	69	921	--	--	--	--	3,289	740	3,029	492	--	96
Otsego	120	272	28	--	--	--	1,720	247	1,108	52	--	28
Presque Isle	106	2,704	16	--	--	--	1,669	2,769	1,975	145	--	--
Roscommon	--	665	16	--	--	--	1,704	1,030	3,713	829	--	15
Wexford	209	533	104	--	104	--	4,485	10,848	4,708	1,156	--	235
Total	3,646	24,979	972	521	791	--	38,085	62,370	102,852	21,554	--	2,448

(Table 7 continued on next page)

(Table 7 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
S. Lower Peninsula												
Allegan	642	4	--	278	653	240	592	2,676	3,521	2,454	--	--
Barry	229	--	--	99	232	85	209	989	1,506	861	--	--
Berrien	--	--	--	--	--	--	--	--	--	--	--	--
Branch	--	--	--	--	--	--	--	--	--	--	--	--
Calhoun	--	--	--	--	--	--	--	--	279	129	--	--
Cass	--	--	--	--	--	--	--	--	--	--	--	624
Clinton	--	--	--	--	--	--	--	--	--	--	--	--
Eaton	--	--	--	--	--	--	--	--	--	--	--	--
Genessee	--	--	--	--	--	--	--	--	--	--	--	--
Gratiot	--	--	--	--	--	--	--	--	--	--	--	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	--	--
Huron	--	--	--	--	--	--	--	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--	--	--	--	--
Kalamazoo	89	--	--	38	90	33	81	365	463	333	--	--
Kent	--	1	--	--	--	--	1	7	52	8	--	--
Lapeer	--	--	--	--	--	--	--	--	--	--	--	--
Lenawee	--	--	--	--	--	--	--	--	--	--	--	--
Livingston	--	--	--	--	--	--	--	--	--	--	--	--
Macomb	--	--	--	--	--	--	--	--	--	--	--	--
Monroe	--	--	--	--	--	--	--	--	--	--	--	--
Montcalm	--	8	--	--	--	--	10	56	380	89	--	--
Muskegon	--	127	--	--	--	--	168	1,833	8,504	2,237	--	--
Oakland	--	--	--	--	--	--	--	--	--	--	--	--
Ottawa	70	26	--	30	71	26	98	461	1,582	524	--	--
Saginaw	--	--	--	--	--	--	--	--	--	--	--	--
St. Clair	--	--	--	--	--	--	--	--	--	--	--	--
St. Joseph	--	--	--	--	--	210	--	232	1,174	211	--	--
Sanilac	--	--	--	--	--	--	--	--	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	--	--
Tuscola	--	--	--	--	--	--	--	--	--	--	--	--
Van Buren	326	--	--	141	331	122	298	1,344	1,700	1,225	--	--
Washtenaw	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
Total	1,356	166	--	586	1,377	716	1,457	7,963	19,161	8,071	--	624
State Total	23,419	79,348	40,143	1,107	50,918	716	144,753	138,171	126,109	29,712	--	11,142

Table 8.--Pulpwood receipts in Michigan by species group, 1946-1984

(In thousand standard cords, unpeeled)[1/]

Year	Total	Roundwood								Residue	
		Pine	Balsam fir	Hemlock	Spruce	Tamarack	Aspen	Birch	Other hardwoods	Soft-woods	Hard-woods
1946	416	85	38	81	133	2	69	2/	8	--	--
1947	444	141	60	64	118	1	50	1	9	--	--
1948	485	132	76	46	132	1	78	--	19	--	1
1949	258	53	45	7	88	--	40	2/	25	--	--
1950	383	66	60	40	101	--	87	1	28	--	--
1951	582	134	81	100	108	--	126	2/	33	--	--
1952	449	80	68	60	116	--	102	1	22	--	--
1953	451	75	54	45	102	--	142	--	33	--	--
1954	412	37	53	2/	97	--	198	--	27	--	--
1955	455	20	53	2	102	--	240	--	38	--	--
1956	535	31	61	2/	92	--	323	--	28	--	--
1957	533	48	83	2	90	--	264	1	45	--	--
1958	549	107	70	2/	73	--	234	--	65	--	--
1959	699	116	70	1	94	--	336	--	81	--	1
1960	810	128	85	2	94	--	431	5	65	--	--
1961	700	109	68	2/	75	--	351	6	91	--	--
1962	679	97	35	--	29	--	387	14	117	--	--
1963	742	84	49	--	78	--	399	9	123	--	--
1964	791	107	40	2/	68	2/	429	18	127	--	2
1965	825	114	35	4	71	--	436	29	118	--	18
1966	1,004	143	44	5	78	--	526	8	159	--	41
1967	774	117	46	2	81	--	323	6	161	--	38
1968	774	133	35	3	61	--	328	11	147	--	56
1969	771	116	19	2	16	--	358	22	152	--	86
1970	805	152	26	3	22	--	332	28	154	11	77
1971	700	115	19	2	17	2/	298	22	165	1	61
1972	931	127	27	22	14	7 3/	322	35	282	9	86
1973	1,199	135	37	36	14	4	404	64	351	12	142
1974	1,324	156	33	29	12	6 3/	482	77	369	9	151
1975	844	167	18	23	7	4 3/	288	33	171	8	125
1976	1,115	213	21	56	11	5 3/	327	53	258	17	154
1977	1,233	208	51	62	25	10 3/	370	48	269	17	173
1978	1,332	218	54	51	20	8 3/	423	71	311	21	155
1979 4/	1,490	222	47	46	13	10 3/	527	85	343	13	184
1980 4/	1,493	202	51	52	28	12 3/	525	73	393	11	146
1981 4/	1,448	188	67	37	22	15 3/	486	85	383	14	151
1982 4/	1,387	216	69	52	44	19 3/	493	73	305	11	105
1983 4/	1,787	204	63	46	51	27 3/	746	114	371	17	148
1984 4/	2,000	234	46	46	37	22 3/	833	103	494	14	171

1/ 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.
2/ Less than 500 cords.
3/ Includes cedar.
4/ Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard.

Table 9.--Pulpwood receipts in Michigan by area of origin, 1946-1984

(In thousand standard cords, unpeeled)[1/]

Year	All areas	Area of Origin				
		Michigan	Wisconsin	Minnesota	Other states	Canada
1946	416	259	--	12	--	145
1947	444	239	42	21	--	142
1948	485	271	--	22	1	191
1949	258	130	--	3	2/	125
1950	383	258	--	3	--	122
1951	582	398	4	9	1	170
1952	449	290	5	1	2	151
1953	451	319	11	11	2/	110
1954	412	309	2/	4	2/	99
1955	455	356	--	5	--	94
1956	535	437	--	7	--	91
1957	533	427	--	9	--	97
1958	549	458	--	7	--	84
1959	699	603	3	7	--	86
1960	810	727	2/	2/	--	83
1961	700	628	1	--	--	71
1962	679	677	1	1	--	--
1963	742	669	2	--	--	71
1964	791	730	2	--	--	59
1965	825	750	1	--	--	74
1966	1,004	902	3	2/	2	97
1967	774	685	2/	2/	4	85
1968	774	702	4	2/	7	61
1969	771	751	9	--	9	2
1970	805	784	10	2/	10	1
1971	700	689	2/	2/	11	2/
1972	931	917	3	2/	11	--
1973	1,199	1,131	55	2/	13	--
1974	1,324	1,290	25	2/	9	--
1975	844	815	19	--	10	--
1976	1,115	1,081	24	--	7	3
1977	1,233	1,159	65	--	9	--
1978	1,332	1,248	70	--	10	4
1979[3/]	1,490	1,428	46	--	14	2
1980[3/]	1,493	1,443	35	--	12	3
1981[3/]	1,448	1,402	26	--	16	4
1982[3/]	1,387	1,340	28	--	16	3
1983[3/]	1,787	1,747	23	--	17	--
1984[3/]	2,000	1,934	45	--	18	3

1/ 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

2/ Less than 500 cords.

3/ Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard.

Table 10.--Pulpwood receipts in Michigan by species group and area of origin, 1984

(In thousand standard cords, unpeeled)[1/]

Species group	Total	Area of origin			
		Michigan	Wisconsin	Other States	Canada
Roundwood[2/]					
Pine	234	233	1	--	--
Balsam fir	46	45	1	--	--
Hemlock	46	44	2	--	--
Spruce	37	37	3/	--	--
Tamarack, cedar	22	22	3/	--	--
Aspen	834	822	12	--	--
Birch	102	97	5	--	--
Other hardwoods	494	494	--	--	--
Total	1,815	1,794	21	--	--
Residue					
Softwoods	14	10	3/	--	4
Hardwoods	171	130	24	17	3/
Total	185	140	24	17	4
All material	2,000	1,934	45	17	4

[1/] 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

[2/] Includes chips from roundwood.

[3/] Less than 500 cords.

Table 11.--Saw log production and receipts in Michigan by species group, 1977 and 1984

(In thousand board feet)[1/]

Species group	Production			Receipts		
	1977	1984	Change	1977	1984	Change
Softwoods						
Cedar	4,228	15,472	11,244	4,314	15,472	11,158
Balsam fir	3,439	2,930	-509	104	2,930	2,826
Hemlock	8,724	5,454	-3,270	6,882	5,454	-1,428
Jack pine	15,697	6,621	-9,076	13,513	6,621	-6,892
Red pine	21,973	15,159	-6,814	12,593	15,159	2,566
White pine	30,841	20,364	-10,477	20,058	20,364	306
Spruce	6,595	3,833	-2,762	3,088	3,833	745
Tamarack	--	269	269	--	269	269
Total	91,497	70,102	-21,395	60,552	70,102	9,550
Hardwoods						
Ash	15,465	13,594	-1,871	15,504	13,594	-1,910
Aspen	98,361	85,293	-13,068	81,677	85,293	3,616
Balsam poplar	244	3,028	2,784	244	3,028	2,784
Basswood	15,480	21,178	5,698	14,766	21,178	6,412
Beech	19,035	20,318	1,283	18,850	20,318	1,468
Paper birch	9,870	10,456	586	8,391	10,456	2,065
Yellow birch	4,018	12,559	8,541	3,619	12,559	8,940
Cottonwood	3,139	2,590	-549	3,080	2,590	-490
Elm	19,202	4,651	-14,551	18,105	4,651	-13,454
Hickory	681	1,358	677	534	1,358	824
Hard maple	90,352	114,709	24,357	87,099	114,709	27,610
Soft maple	35,903	46,889	10,986	35,856	46,889	11,033
Red oak	82,766	93,953	11,187	81,345	93,953	12,608
White oak	22,590	21,726	-864	22,320	21,726	-594
Walnut	271	1,139	868	212	1,139	927
Other hardwoods	5,082	6,109	1,027	4,894	6,109	1,215
Total	422,459	459,550	37,091	396,496	459,550	63,054
All species	513,956	529,652	15,696	457,048	529,652	72,604

[1/] International 1/4-inch rule

Table 12.--Saw log production by Forest Survey Unit, species group, and State of destination, Michigan, 1984

(In thousand board feet)[1/]

Species group	Total	State of destination		
		Michigan	Wisconsin	Indiana
ALL UNITS				
Softwoods				
Cedar	15,472	13,089	2,383	--
Balsam fir	2,930	792	2,138	--
Hemlock	5,454	3,864	1,590	--
Jack pine	6,621	6,027	594	--
Red pine	15,159	14,550	591	18
White pine	20,364	18,763	1,589	12
Spruce	3,833	1,905	1,928	--
Tamarack	269	44	225	--
Total	70,102	59,034	11,038	30
Hardwoods				
Ash	13,594	11,926	955	713
Aspen	85,293	80,525	4,764	4
Balsam poplar	3,028	2,684	344	--
Basswood	21,178	19,119	1,739	320
Beech	20,318	19,762	310	246
Paper birch	10,456	8,855	1,601	--
Yellow birch	12,559	9,913	2,646	--
Cottonwood	2,590	2,400	--	190
Elm	4,651	3,345	1,143	163
Hickory	1,358	917	--	441
Hard maple	114,709	101,221	12,639	849
Soft maple	46,889	41,648	4,141	1,100
Red oak	93,953	89,491	443	4,019
White oak	21,726	20,413	7	1,306
Walnut	1,139	915	--	224
Other hardwoods	6,109	4,759	401	949
Total	459,550	417,893	31,133	10,524
All species	529,652	476,927	42,171	10,554
EASTERN UPPER PENINSULA				
Softwoods				
Cedar	8,317	7,312	1,005	--
Balsam fir	938	494	444	--
Hemlock	992	682	310	--
Jack pine	317	160	157	--
Red pine	1,442	1,250	192	--
White pine	4,895	4,686	209	--
Spruce	1,118	670	448	--
Tamarack	101	23	78	--
Total	18,120	15,277	2,843	--
Hardwoods				
Ash	1,097	897	200	--
Aspen	9,615	8,962	653	--
Balsam poplar	1,094	948	146	--
Basswood	1,499	1,356	143	--
Beech	14,142	13,845	297	--
Paper birch	2,527	2,158	369	--
Yellow birch	1,998	1,796	202	--
Cottonwood	1	1	--	--
Elm	437	307	130	--
Hickory	--	--	--	--
Hard maple	26,193	25,066	1,127	--
Soft maple	7,573	6,753	820	--
Red oak	378	326	52	--
White oak	7	5	2	--
Walnut	--	--	--	--
Other hardwoods	389	287	102	--
Total	66,950	62,707	4,243	--
All species	85,070	77,984	7,086	--

(Table 12 continued on next page)

[1/] International 1/4-inch rule.

(Table 12 continued)

Species group	Total	State of destination: Michigan	Wisconsin	Indiana
WESTERN UPPER PENINSULA				
Softwoods				
Cedar	2,741	1,363	1,378	--
Balsam fir	1,843	149	1,694	--
Hemlock	3,824	2,544	1,280	--
Jack pine	555	118	437	--
Red pine	2,843	2,444	399	--
White pine	11,754	10,374	1,380	--
Spruce	2,501	1,021	1,480	--
Tamarack	153	6	147	--
Total	26,214	18,019	8,195	--
Hardwoods				
Ash	2,075	1,320	755	--
Aspen	9,723	5,612	4,111	--
Balsam poplar	442	244	198	--
Basswood	6,051	4,455	1,596	--
Beech	39	26	13	--
Paper birch	3,669	2,437	1,232	--
Yellow birch	10,078	7,634	2,444	--
Cottonwood	--	--	--	--
Elm	3,256	2,243	1,013	--
Hickory	--	--	--	--
Hard maple	64,072	52,560	11,512	--
Soft maple	11,490	8,169	3,321	--
Red oak	3,931	3,540	391	--
White oak	5	--	5	--
Walnut	--	--	--	--
Other hardwoods	572	273	299	--
Total	115,403	88,513	26,890	--
All species	141,617	106,532	35,085	--
NORTHERN LOWER PENINSULA				
Softwoods				
Cedar	4,414	4,414	--	--
Balsam fir	149	149	--	--
Hemlock	625	625	--	--
Jack pine	5,739	5,739	--	--
Red pine	10,344	10,344	--	--
White pine	3,463	3,463	--	--
Spruce	212	212	--	--
Tamarack	15	15	--	--
Total	24,961	24,961	--	--
Hardwoods				
Ash	5,623	5,623	--	--
Aspen	64,681	64,681	--	--
Balsam poplar	1,487	1,487	--	--
Basswood	11,683	11,683	--	--
Beech	4,584	4,584	--	--
Paper birch	4,180	4,180	--	--
Yellow birch	470	470	--	--
Cottonwood	1,266	1,266	--	--
Elm	378	378	--	--
Hickory	36	36	--	--
Hard maple	19,297	19,297	--	--
Soft maple	18,726	18,726	--	--
Red oak	53,668	53,668	--	--
White oak	10,800	10,800	--	--
Walnut	1	1	--	--
Other hardwoods	1,751	1,751	--	--
Total	198,631	198,631	--	--
All species	223,592	223,592	--	--

(Table 12 continued on next page)

(Table 12 continued)

SOUTHERN LOWER PENINSULA

Species group	Total	State of destination		
		Michigan	Wisconsin	Indiana
Softwoods				
Cedar	--	--	--	--
Balsam fir	--	--	--	--
Hemlock	13	13	--	--
Jack pine	10	10	--	--
Red pine	530	512	--	18
White pine	252	240	--	12
Spruce	2	2	--	--
Tamarack	--	--	--	--
Total	807	777	--	30
Hardwoods				
Ash	4,799	4,086	--	713
Aspen	1,274	1,270	--	4
Balsam poplar	5	5	--	--
Basswood	1,945	1,625	--	320
Beech	1,553	1,307	--	246
Paper birch	80	80	--	--
Yellow birch	13	13	--	--
Cottonwood	1,323	1,133	--	190
Elm	580	417	--	163
Hickory	1,322	881	--	441
Hard maple	5,147	4,298	--	849
Soft maple	9,100	8,000	--	1,100
Red oak	35,976	31,957	--	4,019
White oak	10,914	9,608	--	1,306
Walnut	1,138	914	--	224
Other hardwoods	3,397	2,448	--	949
Total	78,566	68,042	--	10,524
All species	79,373	68,819	--	10,554

Table 13.--Sawlog production by Forest Survey Unit, county, and species group, Michigan, 1984

(In thousand board feet)[1/]

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
E. Upper Peninsula													
Alger	18,751	1,258	309	482	62	205	718	238	8	79	195	348	132
Chippewa	6,181	842	5	27	52	197	504	16	--	--	1,253	--	22
Delta	10,992	2,686	357	86	115	220	440	406	20	303	1,727	286	337
Luce	21,338	32	5	91	--	245	508	151	--	6	1,529	6	3
Mackinac	8,038	613	1	--	3	101	161	33	--	78	2,299	249	247
Menominee	11,213	918	151	207	13	273	2,051	100	56	587	2,331	170	727
Schoolcraft	8,557	1,968	110	99	72	201	513	174	17	44	281	35	31
Total	85,070	8,317	938	992	317	1,442	4,895	1,118	101	1,097	9,615	1,094	1,499
W. Upper Peninsula													
Baraga	16,218	272	179	660	28	17	451	182	19	202	719	41	377
Dickinson	8,229	272	213	20	16	439	1,007	203	23	95	2,723	238	766
Gogebic	29,520	178	258	1,281	28	42	512	496	15	935	826	12	2,243
Houghton	17,570	169	157	310	76	48	474	230	15	147	1,117	3	551
Iron	17,119	166	306	154	33	164	1,797	296	44	103	1,750	61	808
Keweenaw	11,076	264	96	74	--	2	1,836	273	2	25	233	2	62
Marquette	28,976	1,315	416	784	333	2,090	5,132	580	32	95	1,027	56	513
Ontonagon	12,909	105	218	541	41	41	545	241	3	473	1,328	29	731
Total	141,617	2,741	1,843	3,824	555	2,843	11,754	2,501	153	2,075	9,723	442	6,051
N. Lower Peninsula													
Alcona	8,323	1,585	--	--	101	537	110	--	--	109	3,269	279	110
Alpena	4,594	1,300	--	--	4	262	260	--	--	40	2,137	24	19
Antrim	4,939	3	--	41	--	9	24	--	--	179	881	1	1,213
Arenac	1,437	156	--	--	--	10	2	--	--	56	606	1	41
Bay	352	--	--	--	--	--	--	--	--	53	69	--	17
Benzie	7,041	4	--	1	1	22	11	--	1	231	1,354	--	572
Charlevoix	4,329	143	--	21	--	29	39	--	--	127	1,493	2	1,146
Cheboygan	11,190	263	38	166	177	762	345	66	5	137	5,542	84	1,325
Clare	13,118	10	--	--	1	740	150	--	--	149	4,584	11	54
Crawford	3,412	5	--	--	753	615	123	--	--	--	330	1	310
Emmet	7,971	171	12	26	2	60	25	31	4	356	3,095	95	1,007
Gladwin	6,526	91	--	208	104	555	43	--	--	150	2,921	22	45
Grand Traverse	1,961	152	--	3	2	38	34	1	1	36	386	9	157
Iosco	5,012	5	--	--	837	394	85	--	--	140	1,152	88	56
Isabella	3,006	4	--	--	--	17	12	--	3	124	593	--	46
Kalkaska	3,088	53	1	11	56	90	105	1	--	10	435	--	528
Lake	18,673	--	--	--	--	--	15	--	--	323	3,956	20	321
Leelanau	5,254	1	1	108	--	18	7	1	--	587	847	--	1,008
Manistee	6,895	13	1	4	6	26	10	1	1	247	376	1	264
Mason	5,094	--	--	--	--	--	7	--	--	153	417	1	127
Mecosta	5,560	4	--	--	--	132	171	--	--	352	1,028	4	261
Midland	3,334	--	--	--	--	246	9	--	--	158	932	--	84
Missaukee	6,523	55	1	--	11	210	307	2	--	285	1,160	4	241
Montmorency	9,504	68	--	--	198	563	78	40	--	253	4,620	63	451
Newaygo	18,711	--	--	--	--	1,578	215	--	--	215	4,387	11	151
Oceana	7,966	6	--	8	3	16	66	1	--	172	369	6	55
Ogemaw	5,774	--	--	--	385	394	29	--	--	144	2,012	11	101
Osceola	8,310	32	--	--	--	30	62	--	--	255	2,931	16	250
Oscoda	10,409	--	--	--	1,678	1,024	300	--	--	95	4,044	607	159
Otsego	8,907	54	--	27	149	437	224	52	--	85	3,447	59	1,038
Presque Isle	5,730	72	25	--	22	249	53	15	--	61	3,560	27	243
Roscommon	8,209	110	70	--	1,246	1,234	478	--	--	132	1,541	38	20
Wexford	2,440	54	--	1	3	47	64	1	--	209	207	2	263
Total	223,592	4,414	149	625	5,739	10,344	3,463	212	15	5,623	64,681	1,487	11,683

[1/] International 1/4-inch rule.

(Table 13 continued on next page)

(Table 13 continued)

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
S. Lower Peninsula													
Allegan	5,975	--	--	--	--	--	40	--	--	234	33	--	21
Barry	5,666	--	--	--	--	104	--	--	--	153	35	--	166
Berrien	2,067	--	--	--	--	--	--	--	--	102	3	3	59
Branch	2,921	--	--	--	--	--	--	--	--	281	4	--	36
Calhoun	2,993	--	--	--	--	--	--	--	--	353	6	--	188
Cass	4,781	--	--	--	--	--	--	--	--	420	3	--	250
Clinton	240	--	--	--	--	--	--	--	--	26	2	--	15
Eaton	1,215	--	--	--	--	--	--	--	--	251	5	--	125
Genessee	1,588	--	--	--	--	--	--	--	--	124	3	--	53
Gratiot	1,099	--	--	--	--	--	--	--	--	66	37	--	51
Hillsdale	1,743	--	--	--	--	--	--	--	--	145	--	--	30
Huron	247	--	--	--	--	--	--	--	--	33	79	--	--
Ingham	1,341	--	--	--	--	4	--	--	--	128	22	1	47
Ionia	1,747	--	--	--	--	--	--	--	--	67	10	--	97
Jackson	4,395	--	--	--	--	--	--	--	--	206	9	--	50
Kalamazoo	1,237	--	--	--	--	18	12	--	--	61	20	--	2
Kent	4,340	--	--	--	--	9	25	--	--	181	83	--	123
Lapeer	564	--	--	--	--	--	3	--	--	50	--	--	22
Lenawee	1,432	--	--	--	--	--	--	--	--	107	--	--	69
Livingston	2,213	--	--	--	--	--	--	--	--	129	4	--	21
Macomb	692	--	--	--	--	--	--	--	--	31	--	--	5
Monroe	1,169	--	--	--	--	--	--	--	--	30	--	--	31
Montcalm	4,382	--	--	--	--	307	55	--	--	132	418	--	72
Muskegon	5,719	--	--	13	9	58	66	--	--	146	235	--	--
Oakland	691	--	--	--	1	--	4	--	--	60	2	1	6
Ottawa	1,738	--	--	--	--	30	5	2	--	51	6	--	31
Saginaw	953	--	--	--	--	--	--	--	--	90	12	--	4
St. Clair	877	--	--	--	--	--	7	--	--	74	--	--	16
St. Joseph	5,081	--	--	--	--	--	--	--	--	252	23	--	86
Sanilac	388	--	--	--	--	--	7	--	--	59	56	--	6
Shiawassee	1,353	--	--	--	--	--	--	--	--	183	6	--	146
Tuscola	895	--	--	--	--	--	1	--	--	119	149	--	31
Van Buren	4,302	--	--	--	--	--	26	--	--	277	9	--	45
Washtenaw	3,281	--	--	--	--	--	--	--	--	174	--	--	38
Wayne	48	--	--	--	--	--	1	--	--	4	--	--	3
Total	79,373	--	--	13	10	530	252	2	--	4,799	1,274	5	1,945
State Total	529,652	15,472	2,930	5,454	6,621	15,159	20,364	3,833	269	13,594	85,293	3,028	21,178

(Table 13 continued on next page)

(Table 13 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
E. Upper Peninsula												
Alger	4,187	202	365	--	99	--	7,305	2,359	30	--	--	170
Chippewa	1,207	22	255	--	--	--	1,645	123	11	--	--	--
Delta	260	747	387	--	74	--	1,537	880	76	--	--	48
Luce	6,593	34	431	--	2	--	9,510	2,179	2	--	--	11
Mackinac	530	700	171	--	43	--	2,137	604	23	--	--	45
Menominee	173	592	208	1	151	--	1,805	443	235	7	--	14
Schoolcraft	1,192	230	181	--	68	--	2,254	985	1	--	--	101
Total	14,142	2,527	1,998	1	437	--	26,193	7,573	378	7	--	389
W. Upper Peninsula												
Baraga	--	528	1,773	--	191	--	8,045	2,130	213	--	--	191
Dickinson	--	663	52	--	157	--	911	127	285	--	--	19
Gogebic	--	141	3,018	--	1,119	--	16,455	1,843	51	1	--	66
Houghton	--	179	1,499	--	445	--	9,484	1,903	732	1	--	30
Iron	--	950	1,155	--	618	--	7,167	1,022	372	1	--	152
Keweenaw	--	362	560	--	5	--	4,287	1,662	1,330	--	--	1
Marquette	39	726	1,165	--	148	--	11,916	1,790	734	--	--	85
Ontonagon	--	120	856	--	573	--	5,807	1,013	214	2	--	28
Total	39	3,669	10,078	--	3,256	--	64,072	11,490	3,931	5	--	572
N. Lower Peninsula												
Alcona	54	57	10	--	1	--	93	224	1,378	397	--	9
Alpena	--	51	3	--	--	--	47	94	317	36	--	--
Antrim	372	54	30	--	86	--	1,732	309	1	--	--	4
Arenac	3	13	--	8	--	--	38	259	231	13	--	--
Bay	--	--	--	112	--	--	--	94	2	5	--	--
Benzie	346	50	44	1	1	--	1,911	1,060	1,374	1	--	56
Charlevoix	430	11	8	--	21	--	726	87	45	--	--	1
Cheboygan	118	614	20	21	11	--	801	378	288	8	--	21
Clare	103	367	13	6	--	1	148	1,230	4,568	900	--	83
Crawford	54	54	--	--	--	--	112	134	760	160	--	1
Emmet	483	289	53	--	19	--	1,564	378	184	5	--	112
Gladwin	--	178	--	73	4	--	54	919	1,036	118	--	5
Grand Traverse	42	25	6	--	5	--	330	289	333	99	--	13
Iosco	--	97	--	519	--	--	24	956	560	75	--	24
Isabella	17	93	1	223	1	--	64	513	1,011	277	--	7
Kalkaska	78	74	27	--	11	--	744	266	519	5	--	74
Lake	123	155	26	8	55	--	464	1,383	8,538	3,005	--	281
Leelanau	641	6	7	--	3	--	1,214	141	662	--	--	2
Manistee	255	63	5	2	6	--	1,134	1,312	2,315	553	1	299
Mason	124	10	14	14	3	--	356	410	3,107	324	--	27
Mecosta	26	249	39	--	36	3	618	507	1,519	436	--	175
Midland	19	125	1	159	--	--	10	682	733	173	--	3
Missaukee	79	429	6	1	5	--	556	926	1,804	397	--	44
Montmorency	95	161	1	--	1	6	855	444	1,414	188	--	5
Newaygo	279	16	12	78	2	16	684	1,536	7,556	1,856	--	119
Oceana	376	25	20	32	4	8	628	870	4,623	510	--	168
Ogemaw	3	76	2	--	1	--	97	849	1,433	227	--	10
Osceola	167	112	59	5	6	2	1,185	723	2,220	134	--	121
Oscoda	19	130	7	1	1	--	161	273	1,600	289	--	21
Otsego	147	104	22	3	59	--	2,093	314	586	3	--	4
Presque Isle	53	332	24	--	2	--	120	354	386	131	--	1
Roscommon	2	151	4	--	--	--	11	548	2,197	421	--	6
Wexford	76	9	6	--	34	--	723	264	368	54	--	55
Total	4,584	4,180	470	1,266	378	36	19,297	18,726	53,668	10,800	1	1,751

(Table 13 continued on next page)

(Table 13 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
S. Lower Peninsula												
Allegan	79	--	1	23	10	17	238	487	3,544	719	24	505
Barry	279	--	1	22	8	120	754	701	2,622	498	16	187
Berrien	155	--	1	116	36	30	491	120	566	117	--	268
Branch	1	--	--	159	33	59	114	879	533	653	42	127
Calhoun	28	--	1	12	27	62	127	498	1,051	495	9	136
Cass	127	--	5	13	130	176	312	624	1,672	473	111	465
Clinton	--	--	--	2	1	6	10	67	67	19	24	1
Eaton	107	--	--	15	51	44	292	155	45	78	22	25
Genessee	11	--	--	6	16	2	95	188	723	344	20	3
Gratiot	--	--	--	--	--	--	80	211	530	124	--	--
Hillsdale	--	--	--	45	15	9	265	254	645	275	28	32
Huron	--	31	--	82	--	--	--	16	--	--	--	6
Ingham	14	--	--	86	5	7	130	150	299	257	24	167
Ionia	122	--	--	--	2	22	159	165	889	80	46	88
Jackson	--	--	1	12	17	129	41	277	2,858	605	34	156
Kalamazoo	11	--	1	37	5	43	24	178	578	143	3	101
Kent	96	--	--	--	14	45	505	527	2,157	465	11	99
Lapeer	6	--	--	14	1	--	84	82	149	151	--	2
Lenawee	5	--	--	8	10	30	133	143	613	258	41	15
Livingston	--	--	--	0	19	43	42	245	1,124	543	14	29
Macomb	--	--	--	17	50	--	14	72	223	274	--	6
Monroe	--	--	--	64	7	42	39	62	653	144	59	38
Montcalm	47	--	--	--	20	10	147	296	2,408	441	8	21
Muskegon	135	2	1	1	2	1	173	500	3,516	702	--	159
Oakland	3	--	--	7	29	22	14	64	270	195	--	13
Ottawa	222	--	--	32	--	6	107	256	813	123	11	43
Saginaw	--	8	--	256	--	--	34	165	142	209	1	32
St. Clair	--	--	--	72	--	--	27	80	176	425	--	--
St. Joseph	13	--	--	3	17	264	141	435	2,908	320	371	248
Sanilac	1	21	--	18	--	--	15	69	54	82	--	--
Shiawassee	23	--	--	33	1	12	151	130	417	216	5	30
Tuscola	1	18	--	128	--	--	70	266	55	46	4	7
Van Buren	50	--	1	30	34	61	254	481	2,103	577	31	323
Washtenaw	14	--	--	7	17	57	62	254	1,562	852	179	65
Wayne	3	--	--	3	3	3	3	3	11	11	--	--
Total	1,553	80	13	1,323	580	1,322	5,147	9,100	35,976	10,914	1,138	3,397
State Total	20,318	10,456	12,559	2,590	4,651	1,358	114,709	46,889	93,953	21,726	1,139	6,109

Table 14.--Saw log receipts in Michigan by Forest Survey Unit, species group, and State of origin, 1984

(In thousand board feet)[1/]

Species group	All States	State of origin			
		Michigan	Indiana	Wisconsin	Ohio
ALL UNITS					
Softwoods					
Cedar	13,089	13,089	--	--	--
Balsam fir	793	792	--	1	--
Hemlock	3,864	3,864	--	--	--
Jack pine	6,027	6,027	--	--	--
Red pine	14,594	14,550	--	44	--
White pine	18,765	18,763	--	2	--
Spruce	1,906	1,905	--	1	--
Tamarack	44	44	--	--	--
Total	59,082	59,034	--	48	--
Hardwoods					
Ash	12,295	11,926	207	24	138
Aspen	80,991	80,525	--	466	--
Balsam poplar	2,684	2,684	--	--	--
Basswood	19,206	19,119	25	45	17
Beech	19,774	19,762	--	12	--
Paper birch	9,710	8,855	--	855	--
Yellow birch	9,919	9,913	--	6	--
Cottonwood	2,400	2,400	--	--	--
Elm	3,387	3,345	25	--	17
Hickory	917	917	--	--	--
Hard maple	101,839	101,221	83	480	55
Soft maple	42,161	41,648	290	30	193
Red oak	92,373	89,491	1,391	564	927
White oak	21,516	20,413	678	--	425
Walnut	957	915	25	--	17
Other hardwoods	4,759	4,759	--	--	--
Total	424,888	417,893	2,724	2,482	1,789
All species	483,970	476,927	2,724	2,530	1,789
EASTERN UPPER PENINSULA					
Softwoods					
Cedar	6,781	6,781	--	--	--
Balsam fir	578	578	--	--	--
Hemlock	1,189	1,189	--	--	--
Jack pine	264	264	--	--	--
Red pine	3,487	3,487	--	--	--
White pine	9,701	9,701	--	--	--
Spruce	909	909	--	--	--
Tamarack	23	23	--	--	--
Total	22,932	22,932	--	--	--
Hardwoods					
Ash	848	824	--	24	--
Aspen	7,584	7,420	--	164	--
Balsam poplar	802	802	--	--	--
Basswood	1,553	1,508	--	45	--
Beech	13,750	13,738	--	12	--
Paper birch	1,782	1,737	--	45	--
Yellow birch	2,020	2,014	--	6	--
Cottonwood	1	1	--	--	--
Elm	325	325	--	--	--
Hickory	--	--	--	--	--
Hard maple	28,737	28,662	--	75	--
Soft maple	6,784	6,754	--	30	--
Red oak	844	841	--	3	--
White oak	4	4	--	--	--
Walnut	--	--	--	--	--
Other hardwoods	258	258	--	--	--
Total	65,292	64,888	--	404	--
All species	88,224	87,820	--	404	--

(Table 14 continued on next page)

[1/] International 1/4-inch rule.

(Table 14 continued)

Species group	All States	State of origin: Michigan	Indiana	Wisconsin	Ohio
WESTERN UPPER PENINSULA					
Softwoods					
Cedar	694	694	--	--	--
Balsam fir	66	65	--	1	--
Hemlock	2,037	2,037	--	--	--
Jack pine	14	14	--	--	--
Red pine	251	207	--	44	--
White pine	5,361	5,359	--	2	--
Spruce	783	782	--	1	--
Tamarack	6	6	--	--	--
Total	9,212	9,164	--	48	--
Hardwoods					
Ash	1,365	1,365	--	--	--
Aspen	5,870	5,568	--	302	--
Balsam poplar	248	248	--	--	--
Basswood	4,145	4,145	--	--	--
Beech	31	31	--	--	--
Paper birch	3,330	2,520	--	810	--
Yellow birch	7,365	7,365	--	--	--
Cottonwood	--	--	--	--	--
Elm	2,202	2,202	--	--	--
Hickory	--	--	--	--	--
Hard maple	48,971	48,566	--	405	--
Soft maple	7,884	7,884	--	--	--
Red oak	3,571	3,010	--	561	--
White oak	1	1	--	--	--
Walnut	--	--	--	--	--
Other hardwoods	278	278	--	--	--
Total	85,261	83,183	--	2,078	--
All species	94,473	92,347	--	2,126	--
NORTHERN LOWER PENINSULA					
Softwoods					
Cedar	5,556	5,556	--	--	--
Balsam fir	149	149	--	--	--
Hemlock	638	638	--	--	--
Jack pine	5,741	5,741	--	--	--
Red pine	8,750	8,750	--	--	--
White pine	3,234	3,234	--	--	--
Spruce	212	212	--	--	--
Tamarack	12	12	--	--	--
Total	24,292	24,292	--	--	--
Hardwoods					
Ash	4,271	4,271	--	--	--
Aspen	64,702	64,702	--	--	--
Balsam poplar	1,617	1,617	--	--	--
Basswood	11,208	11,208	--	--	--
Beech	4,323	4,323	--	--	--
Paper birch	4,457	4,457	--	--	--
Yellow birch	496	496	--	--	--
Cottonwood	519	519	--	--	--
Elm	380	380	--	--	--
Hickory	19	19	--	--	--
Hard maple	17,883	17,883	--	--	--
Soft maple	15,076	15,076	--	--	--
Red oak	44,264	44,264	--	--	--
White oak	8,437	8,437	--	--	--
Walnut	4	4	--	--	--
Other hardwoods	1,374	1,374	--	--	--
Total	179,030	179,030	--	--	--
All species	203,322	203,322	--	--	--

(Table 14 continued on next page)

(Table 14 continued)

SOUTHERN LOWER PENINSULA

Species group	All States	State of origin			
		Michigan	Indiana	Wisconsin	Ohio
Softwoods					
Cedar	58	58	--	--	--
Balsam fir	--	--	--	--	--
Hemlock	--	--	--	--	--
Jack pine	8	8	--	--	--
Red pine	2,106	2,106	--	--	--
White pine	469	469	--	--	--
Spruce	2	2	--	--	--
Tamarack	3	3	--	--	--
Total	2,646	2,646	--	--	--
Hardwoods					
Ash	5,811	5,466	207	--	138
Aspen	2,835	2,835	--	--	--
Balsam poplar	17	17	--	--	--
Basswood	2,300	2,258	25	--	17
Beech	1,670	1,670	--	--	--
Paper birch	141	141	--	--	--
Yellow birch	38	38	--	--	--
Cottonwood	1,880	1,880	--	--	--
Elm	480	438	25	--	17
Hickory	898	898	--	--	--
Hard maple	6,248	6,110	83	--	55
Soft maple	12,417	11,934	290	--	193
Red oak	43,694	41,376	1,391	--	927
White oak	13,074	11,971	678	--	425
Walnut	953	911	25	--	17
Other hardwoods	2,849	2,849	--	--	--
Total	95,305	90,792	2,724	--	1,789
All species	97,951	93,438	2,724	--	1,789

Table 15.--Veneer log production and receipts in Michigan for selected years, 1946-1984

(In thousand board feet)[1/]

Year	Production	Receipts
1946	78,858	46,055
1948	77,684	53,899
1950	53,568	37,404
1952	40,219	28,547
1954	34,499	21,872
1956	39,655	23,564
1958	19,958	12,597
1960	18,487	12,075
1963	15,300	7,598
1965	20,392	12,428
1966	21,942	12,782
1968	19,333	9,573
1969	19,194	14,970
1970	15,039	6,729
1972	18,479	5,324
1974	25,949[2/]	25,322[3/]
1975	26,079[2/]	26,851[3/]
1976	33,373[2/]	28,764[3/]
1977	42,738[2/]	30,838[3/]
1978	35,030[2/]	39,179[3/]
1980	36,761[2/]	27,287[3/]
1984	31,753	13,737

[1/] International 1/4-inch rule.

[2/] Includes Michigan veneer logs received at Iron Wood Products Co.; such receipts are not shown before 1974.

[3/] Includes all veneer logs received at Iron Wood Products Co.; such receipts are not shown before 1974.

Table 16.--Veneer log production and receipts by species group in Michigan, 1977 and 1984

(In thousand board feet)[1/]

Species group	Production			Receipts		
	1977	1984	Change	1977	1984	Change
Red pine	--	5,030	5,030	--	--	--
White pine	--	1,366	1,366	--	--	--
Ash	157	1,193	1,036	27	829	802
Aspen	22,218	270	-21,948	22,186	114	-22,072
Basswood	978	413	-565	738	267	-471
Beech	115	729	614	123	263	140
Paper birch	1,389	1,193	-196	988	826	-162
Yellow birch	5,654	2,870	-2,784	2,600	1,323	-1,277
Cottonwood	165	400	235	325	457	132
Elm	515	141	-374	11	6	-5
Hickory	43	4	-39	--	--	--
Hard maple	7,548	9,774	2,226	3,078	4,169	1,091
Soft maple	306	347	41	172	273	101
Red oak	2,392	6,414	4,022	476	2,867	2,391
White oak	659	980	321	--	1,953	1,953
Walnut	493	253	-240	--	104	104
Other species	106	376	270	114	288	174
All species	42,738	31,753	-10,985	30,838	13,739	-17,099

[1/] International 1/4-inch rule.

Table 17.--Veneer log production by species group and State or country of destination, Michigan, 1984

(In thousand board feet)[1/]

Species group	Total	Destination of wood						
		Michigan	Wisconsin	Ohio	Indiana	Iowa	Kentucky	Canada
Softwoods								
Red pine	5,030	--	--	30	--	--	--	5,000
White pine	1,366	--	109	7	--	--	--	1,250
Total	6,396	--	109	37	--	--	--	6,250
Hardwoods								
Ash	1,193	829	311	34	3	11	--	5
Aspen	270	114	156	--	--	--	--	--
Basswood	413	267	146	--	--	--	--	--
Beech	729	263	230	236	--	--	--	--
Paper birch	1,193	819	262	--	--	--	--	112
Yellow birch	2,870	1,288	1,540	--	3	--	--	39
Cottonwood	400	400	--	--	--	--	--	--
Elm	141	6	104	--	20	11	--	--
Hickory	4	--	--	1	3	--	--	--
Hard maple	9,774	4,169	4,158	524	467	11	--	445
Soft maple	347	273	74	--	--	--	--	--
Red oak	6,414	2,111	2,269	505	820	--	--	709
White oak	980	315	19	543	87	11	5	--
Walnut	253	28	--	116	103	--	6	--
Other hardwoods	376	172	--	82	94	11	17	--
Total	25,357	11,054	9,269	2,041	1,600	55	28	1,310
All species	31,753	11,054	9,378	2,078	1,600	55	28	7,560

[1/] International 1/4-inch rule.

Table 18.--Veneer log production by Forest Survey Unit, county, and species group, Michigan, 1984

(In thousand board feet)[1/]

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
E. Upper Peninsula													
Alger	2,176	--	--	--	--	538	205	--	--	--	--	--	--
Chippewa	1,318	--	--	--	--	892	184	--	--	--	--	--	--
Delta	1,702	--	--	--	--	847	126	--	--	--	--	--	--
Luce	3,140	--	--	--	--	995	337	--	--	7	--	--	--
Mackinac	1,158	--	--	--	--	652	131	--	--	9	--	--	--
Menominee	526	--	--	--	--	--	--	--	--	8	--	--	8
Schoolcraft	1,824	--	--	--	--	1,076	283	--	--	10	--	--	--
Total	11,844	--	--	--	--	5,000	1,266	--	--	34	--	--	8
W. Upper Peninsula													
Baraga	1,726	--	--	--	--	--	--	--	--	--	9	--	--
Dickinson	243	--	--	--	--	--	--	--	--	--	14	--	11
Gogebic	703	--	--	--	--	--	--	--	--	11	19	--	37
Houghton	2,719	--	--	--	--	--	26	--	--	130	17	--	9
Iron	949	--	--	--	--	--	12	--	--	21	30	--	25
Keweenaw	1,538	--	--	--	--	--	30	--	--	10	3	--	--
Marquette	2,385	--	--	--	--	--	25	--	--	32	25	--	7
Ontonagon	1,352	--	--	--	--	--	7	--	--	84	39	--	49
Total	11,615	--	--	--	--	--	100	--	--	288	156	--	138
N. Lower Peninsula													
Arenac	101	--	--	--	--	--	--	--	--	20	--	--	--
Benzie	120	--	--	--	--	--	--	--	--	50	--	--	--
Charlevoix	134	--	--	--	--	--	--	--	--	119	--	--	--
Emmet	404	--	--	--	--	--	--	--	--	120	--	--	35
Gladwin	34	--	--	--	--	--	--	--	--	--	--	--	--
Grand Traverse	157	--	--	--	--	--	--	--	--	49	--	--	--
Iosco	54	--	--	--	--	--	--	--	--	11	--	--	--
Isabella	132	--	--	--	--	--	--	--	--	13	--	--	--
Kalkaska	78	--	--	--	--	--	--	--	--	13	--	--	--
Lake	255	--	--	--	--	--	--	--	--	42	24	--	49
Leelanau	138	--	--	--	--	--	--	--	--	50	--	--	--
Manistee	277	--	--	--	--	--	--	--	--	40	15	--	58
Mason	294	--	--	--	--	--	--	--	--	36	21	--	19
Mecosta	37	--	--	--	--	--	--	--	--	3	3	--	3
Midland	108	--	--	--	--	--	--	--	--	--	--	--	--
Montmorency	71	--	--	--	--	--	--	--	--	--	--	--	--
Newaygo	684	--	--	--	--	--	--	--	--	64	23	--	59
Oceana	494	--	--	--	--	--	--	--	--	53	11	--	19
Ogemaw	9	--	--	--	--	--	--	--	--	3	--	--	--
Osceola	61	--	--	--	--	--	--	--	--	6	5	--	7
Oscoda	73	--	--	--	--	--	--	--	--	2	--	--	--
Otsego	70	--	--	--	--	--	--	--	--	--	--	--	--
Roscommon	130	--	--	--	--	--	--	--	--	11	--	--	--
Wexford	24	--	--	--	--	--	--	--	--	3	2	--	7
Total	3,939	--	--	--	--	--	--	--	--	708	104	--	256

[1/] International 1/4-inch rule.

(Table 18 continued on next page)

(Table 18 continued)

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar	Basswood
S. Lower Peninsula													
Allegan	316	--	--	--	--	--	--	--	--	13	--	--	--
Barry	472	--	--	--	--	--	--	--	--	1	--	--	--
Berrien	274	--	--	--	--	--	--	--	--	--	--	--	--
Branch	6	--	--	--	--	--	--	--	--	--	--	--	--
Calhoun	43	--	--	--	--	--	--	--	--	11	--	--	--
Cass	119	--	--	--	--	--	--	--	--	13	--	--	--
Clinton	138	--	--	--	--	--	--	--	--	13	--	--	--
Eaton	47	--	--	--	--	--	--	--	--	--	--	--	--
Genessee	80	--	--	--	--	--	--	--	--	--	--	--	--
Gratiot	165	--	--	--	--	--	--	--	--	13	--	--	--
Hillsdale	80	--	--	--	--	--	--	--	--	--	--	--	--
Ingham	71	--	--	--	--	--	--	--	--	--	--	--	--
Ionia	124	--	--	--	--	--	--	--	--	13	--	--	--
Jackson	277	--	--	--	--	--	--	--	--	1	--	--	--
Kalamazoo	109	--	--	--	--	--	--	--	--	13	--	--	--
Kent	200	--	--	--	--	--	--	--	--	3	--	--	2
Lapeer	85	--	--	--	--	--	--	--	--	--	--	--	--
Lenawee	90	--	--	--	--	--	--	--	--	--	--	--	--
Livingston	74	--	--	--	--	--	--	--	--	--	--	--	--
Macomb	47	--	--	--	--	--	--	--	--	--	--	--	--
Monroe	61	--	--	--	--	--	--	--	--	--	--	--	--
Montcalm	231	--	--	--	--	--	--	--	--	5	1	--	1
Muskegon	196	--	--	--	--	30	--	--	--	23	9	--	--
Oakland	74	--	--	--	--	--	--	--	--	--	--	--	--
Ottawa	76	--	--	--	--	--	--	--	--	2	--	--	2
Saginaw	38	--	--	--	--	--	--	--	--	--	--	--	--
St. Clair	127	--	--	--	--	--	--	--	--	11	--	--	--
St. Joseph	152	--	--	--	--	--	--	--	--	2	--	--	--
Shiawassee	104	--	--	--	--	--	--	--	--	13	--	--	--
Tuscola	40	--	--	--	--	--	--	--	--	--	--	--	--
Van Buren	273	--	--	--	--	--	--	--	--	13	--	--	6
Washtenaw	166	--	--	--	--	--	--	--	--	--	--	--	--
Total	4,355	--	--	--	--	30	--	--	--	163	10	--	11
State Total	31,753	--	--	--	--	5,030	1,366	--	--	1,193	270	--	413

(Table 18 continued on next page)

(Table 18 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
E. Upper Peninsula												
Alger	--	10	154	--	--	--	1,260	9	--	--	--	--
Chippewa	--	31	51	--	44	--	70	--	46	--	--	--
Delta	35	320	85	--	--	--	250	--	39	--	--	--
Luce	128	6	80	--	--	--	1,553	--	34	--	--	--
Mackinac	--	39	59	--	--	--	194	--	74	--	--	--
Menominee	--	243	24	--	--	--	74	--	169	--	--	--
Schoolcraft	67	44	79	--	--	--	265	--	--	--	--	--
Total	230	693	532	--	44	--	3,666	9	362	--	--	--
W. Upper Peninsula												
Baraga	--	26	317	--	--	--	1,308	15	51	--	--	--
Dickinson	--	35	24	--	--	--	72	0	87	--	--	--
Gogebic	--	16	248	--	12	--	246	5	109	--	--	--
Houghton	--	57	560	--	--	--	1,333	9	578	--	--	--
Iron	--	67	255	--	20	--	330	11	178	--	--	--
Keweenaw	--	72	166	--	--	--	370	3	884	--	--	--
Marquette	--	206	437	--	--	--	526	15	1,107	--	--	5
Ontonagon	--	21	328	--	28	--	658	7	112	19	--	--
Total	--	500	2,335	--	60	--	4,843	65	3,106	19	--	5
N. Lower Peninsula												
Arenac	--	--	--	--	--	--	8	--	69	3	--	1
Benzie	--	--	--	--	--	--	5	--	65	--	--	--
Charlevoix	--	--	--	--	--	--	15	--	--	--	--	--
Emmet	--	--	--	--	--	--	180	--	66	--	--	3
Gladwin	--	--	--	--	--	--	--	--	34	--	--	--
Grand Traverse	--	--	--	--	--	--	43	--	65	--	--	--
Iosco	--	--	--	--	--	--	--	--	43	--	--	--
Isabella	--	--	--	--	--	--	--	--	81	36	--	2
Kalkaska	--	--	--	--	--	--	--	--	65	--	--	--
Lake	19	--	--	--	--	--	3	23	81	14	--	--
Leelanau	--	--	--	--	--	--	6	--	66	16	--	--
Manistee	78	--	--	--	--	--	35	51	--	--	--	--
Mason	10	--	--	--	--	--	15	25	82	86	--	--
Mecosta	--	--	--	--	--	--	7	2	--	19	--	--
Midland	43	--	--	--	--	--	--	--	30	35	--	--
Montmorency	--	--	--	--	--	--	--	--	71	--	--	--
Newaygo	39	--	--	7	--	--	34	51	201	191	--	15
Oceana	30	--	--	96	--	--	29	30	120	66	--	40
Ogemaw	--	--	--	--	--	--	--	--	--	5	--	1
Osceola	6	--	--	2	--	--	30	5	--	--	--	--
Oscoda	--	--	--	--	--	--	--	--	71	--	--	--
Otsego	--	--	--	--	--	--	--	--	70	--	--	--
Roscommon	--	--	--	--	--	--	--	--	115	3	--	1
Wexford	7	--	--	--	--	--	--	5	--	--	--	--
Total	232	--	--	105	--	--	410	192	1,395	474	--	63

(Table 18 continued on next page,

(Table 18 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
S. Lower Peninsula												
Allegan	11	--	--	40	--	--	--	9	115	94	--	34
Barry	--	--	--	6	--	1	197	--	198	29	--	40
Berrien	--	--	--	151	11	--	34	11	10	--	--	57
Branch	--	--	--	--	--	--	--	--	--	--	6	--
Calhoun	--	--	--	--	--	--	--	--	7	--	--	25
Cass	--	--	3	8	10	--	--	--	41	11	16	17
Clinton	--	--	--	--	--	--	8	--	90	17	7	3
Eaton	--	--	--	--	--	--	47	--	--	--	--	--
Genessee	30	--	--	--	--	--	40	--	10	--	--	--
Gratiot	--	--	--	--	--	--	8	--	106	36	--	2
Hillsdale	--	--	--	--	--	--	63	--	--	--	17	--
Ingham	15	--	--	--	--	--	33	--	8	15	--	--
Ionia	--	--	--	--	--	--	--	--	92	17	--	2
Jackson	--	--	--	--	--	1	--	--	168	57	23	27
Kalamazoo	6	--	--	21	--	--	--	11	41	11	--	6
Kent	1	--	--	--	--	--	81	5	100	8	--	--
Lapeer	15	--	--	--	--	--	48	--	22	--	--	--
Lenawee	15	--	--	--	--	--	57	--	8	--	10	--
Livingston	--	--	--	--	--	--	--	--	60	14	--	--
Macomb	15	--	--	--	--	--	32	--	--	--	--	--
Monroe	--	--	--	--	--	--	16	--	24	--	21	--
Montcalm	2	--	--	--	10	--	--	3	62	101	--	46
Muskegon	30	--	--	--	--	--	--	25	68	11	--	--
Oakland	15	--	--	--	--	--	8	--	51	--	--	--
Ottawa	7	--	--	9	--	--	32	3	21	--	--	--
Saginaw	--	--	--	--	--	--	24	--	14	--	--	--
St. Clair	44	--	--	--	--	--	40	--	32	--	--	--
St. Joseph	--	--	--	--	--	2	--	--	46	10	91	1
Shiawassee	29	--	--	--	--	--	24	--	38	--	--	--
Tuscola	--	--	--	--	--	--	40	--	--	--	--	--
Van Buren	17	--	--	60	6	--	15	14	76	18	--	48
Washtenaw	15	--	--	--	--	--	8	--	43	38	62	--
Total	267	--	3	295	37	4	855	81	1,551	487	253	308
State Total	729	1,193	2,870	400	141	4	9,774	347	6,414	980	253	376

Table 19.--Veneer log receipts in Michigan by area of origin for selected years, 1946-1984

(In thousand board feet)[1/]

Year	All areas	Area of origin				
		Michigan	Wisconsin	Minnesota	Other States	Canada
1946	46,055	44,534	--	--	956	565
1948	53,899	50,151	127	--	699	2,922
1950	37,404	33,125	454	73	477	3,275
1952	28,547	24,077	1,046	341	650	2,433
1954	21,872	18,596	582	183	137	2,374
1956	23,564	20,341	105	177	80	2,861
1958	12,597	10,785	80	166	40	1,526
1960	12,075	8,628	450	500	245	2,252
1963	7,598	5,315	495	235	165	1,388
1965	12,428	10,344	805	102	180	997
1966	12,782	10,654	585	138	206	1,199
1968	9,573	8,375	332	173	283	410
1969	14,970	12,663	1,498	300	59	450
1970	6,729	5,399	79	77	246	928
1972	5,324	4,565	66	33	--	660
1974	25,322[2/]	12,724	11,136	1,092	--	370
1975	26,851[2/]	15,609	10,885	357	--	--
1976	28,764[2/]	18,516	9,830	418	--	--
1977	30,838[2/]	30,378	--	--	460	--
1978	39,179[2/]	22,597	15,000	1,000	525	57
1980	27,287[2/]	22,087	5,200	--	--	--
1984	13,737[2/]	11,052	146	520	2,019	--

[1/] International 1/4-inch rule.

[2/] Includes all veneer logs received at Iron Wood Products Co.; such receipts are not shown before 1974.

Table 20.--Veneer log receipts in Michigan by species group and State of origin, 1984

(In thousand board feet)[1/]

Species group	All States	State of origin							
		Michigan	Indiana	Minnesota	Penn-sylvania	Kentucky	Illinois	Ohio	Wisconsin
Hardwoods									
Ash	829	829	--	--	--	--	--	--	--
Aspen	114	114	--	--	--	--	--	--	--
Basswood	267	267	--	--	--	--	--	--	--
Beech	263	263	--	--	--	--	--	--	--
Paper birch	826	819	--	--	--	--	--	--	7
Yellow birch	1,323	1,288	--	--	--	--	--	--	35
Cottonwood	457	400	57	--	--	--	--	--	--
Elm	6	6	--	--	--	--	--	--	--
Hard maple	4,169	4,169	--	--	--	--	--	--	--
Soft maple	273	273	--	--	--	--	--	--	--
Red oak	2,867	2,111	--	520	132	--	--	--	104
White oak	1,953	315	431	--	259	431	345	172	--
Walnut	104	28	46	--	--	23	7	--	--
Other hardwoods	288	172	17	--	99	--	--	--	--
All species	13,739	11,054	551	520	490	454	352	172	146

[1/] International 1/4-inch rule.

Table 21.--Commercial post production by Forest Survey Unit, county, and species group, Michigan, 1984

(In thousand pieces)

Unit and county	All species	Species group					
		Cedar	Balsam fir	Jack pine	Red pine	White pine	Spruce
Eastern Upper Peninsula							
Alger	7	7	--	--	--	--	--
Chippewa	2	2	--	--	--	--	--
Delta	475	150	1	108	108	108	--
Luce	4	--	--	--	4	--	--
Mackinac	37	22	5	--	--	--	10
Menominee	1,478	1,315	163	--	--	--	--
Schoolcraft	26	26	--	--	--	--	--
Total	2,029	1,522	169	108	112	108	10
Western Upper Peninsula							
Baraga	22	--	--	22	--	--	--
Dickinson	38	37	1	--	--	--	--
Keweenaw	30	30	--	--	--	--	--
Marquette	40	7	--	22	--	11	--
Total	130	74	1	44	--	11	--
Northern Lower Peninsula							
Alpena	30	15	5	--	--	--	10
Arenac	10	10	--	--	--	--	--
Clare	5	5	--	--	--	--	--
Crawford	15	--	--	--	15	--	--
Grand Traverse	10	10	--	--	--	--	--
Isabella	2	2	--	--	--	--	--
Mecosta	2	2	--	--	--	--	--
Missaukee	6	6	--	--	--	--	--
Montmorency	30	15	5	--	--	--	10
Ogemaw	15	--	--	--	15	--	--
Oscoda	20	--	--	--	20	--	--
Presque Isle	260	155	35	--	--	--	70
Total	405	220	45	--	50	--	90
State total	2,564	1,816	215	152	162	119	100

Table 22.--Pole production by Forest Survey Unit, county, and species group, Michigan, 1984

(In number of pieces)

Unit and county	All species	Species group			
		Cedar	Balsam fir	Red pine	Spruce
Eastern Upper Peninsula					
Alger	1,378	--	64	1,250	64
Chippewa	3,138	--	--	3,138	--
Delta	2,453	1,000	171	1,111	171
Luce	5,360	--	--	5,360	--
Mackinac	3,272	--	--	3,272	--
Schoolcraft	3,375	--	64	3,247	64
Total	18,976	1,000	299	17,378	299
Western Upper Peninsula					
Marquette	128	--	64	--	64
Total	128	--	64	--	64
Northern Lower Peninsula					
Charlevoix	1,153	--	21	1,111	21
Cheboygan	42	--	21	--	21
Emmet	42	--	21	--	21
Newaygo	16,667	--	--	16,667	--
Total	17,904	--	63	17,778	63
Southern Lower Peninsula					
Allegan	2,112	--	--	2,112	--
Barry	704	--	--	704	--
Van Buren	704	--	--	704	--
Total	3,520	--	--	3,520	--
State total	40,528	1,000	426	38,676	426

Table 23.--Logging residue generated during industrial roundwood production by Forest Survey Unit, county, and species group. Michigan, 1984

(In thousand cubic feet)

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
E. Upper Peninsula													
Alger	2,253	137	91	91	70	116	114	113	10	13	90	46	25
Chippewa	1,166	83	45	29	240	148	55	138	8	2	138	9	6
Delta	3,576	322	369	103	206	357	174	287	31	26	487	103	65
Luce	1,750	6	43	76	123	64	44	103	4	2	170	9	4
Mackinac	1,454	78	77	63	49	67	29	110	6	9	345	43	29
Menominee	3,083	327	390	200	70	114	183	182	34	40	698	74	67
Schoolcraft	2,602	215	118	133	520	325	101	142	28	7	161	51	33
Total	15,884	1,168	1,133	695	1,368	1,191	700	1,075	121	99	2,089	335	229
W. Upper Peninsula													
Baraga	2,635	41	46	261	137	38	41	44	8	18	566	2	31
Dickinson	1,886	44	168	74	50	67	82	168	16	8	776	34	56
Gogebic	3,217	16	51	102	49	70	77	97	1	90	246	--	140
Houghton	1,641	14	29	46	81	19	26	30	4	19	229	--	30
Iron	3,749	32	228	53	63	81	160	264	25	33	967	13	56
Keweenaw	631	25	8	4	--	--	102	23	--	1	11	--	3
Marquette	5,003	173	303	219	608	278	388	322	63	18	510	94	87
Ontonagon	1,756	8	30	39	24	59	52	27	1	31	387	2	79
Total	20,518	353	863	798	1,012	612	928	975	118	218	3,692	145	482
N. Lower Peninsula													
Alcona	1,401	133	2	--	42	44	6	--	--	15	850	43	7
Alpena	788	111	3	--	25	14	14	2	--	9	468	18	--
Antrim	278	--	--	2	1	2	1	--	--	10	57	--	66
Arenac	83	14	--	--	--	--	--	--	--	2	39	--	2
Bay	17	--	--	--	--	--	--	--	--	2	4	--	--
Benzie	572	--	--	--	1	11	1	--	--	17	166	--	33
Charlevoix	319	13	--	1	2	1	2	--	--	12	128	1	60
Cheboygan	1,141	22	14	9	55	43	18	8	--	17	645	11	71
Clare	1,053	2	--	--	5	45	8	--	--	8	623	1	2
Crawford	433	--	--	--	131	76	9	--	--	0	125	--	16
Emmet	502	15	1	1	1	35	1	3	--	23	190	5	54
Gladwin	610	7	--	11	39	31	2	--	--	8	384	4	2
Grand Traverse	259	14	1	--	6	11	2	--	--	4	136	--	9
Iosco	542	--	--	--	166	46	5	--	--	13	143	7	2
Isabella	199	--	--	--	--	1	1	--	--	6	85	--	2
Kalkaska	383	4	--	1	40	40	6	--	--	--	163	--	27
Lake	1,381	--	--	--	75	38	2	--	--	19	438	1	17
Leelanau	284	--	--	6	--	1	--	--	--	32	52	--	54
Manistee	936	1	--	--	19	44	1	--	--	24	210	--	24
Mason	517	--	--	--	4	5	--	--	--	10	235	--	9
Mecosta	600	--	--	--	3	24	9	--	--	18	353	--	14
Midland	306	--	--	--	--	14	--	--	--	9	163	5	5
Missaukee	1,016	4	--	--	33	48	16	--	--	16	609	--	14
Montmorency	1,040	7	1	--	187	40	5	4	--	17	494	11	24
Newaygo	1,310	--	--	--	105	166	12	--	--	13	399	--	9
Oceana	538	--	--	--	2	3	3	--	--	10	173	--	2
Ogemaw	848	--	--	--	207	43	1	--	--	13	309	3	6
Osceola	907	3	--	--	3	2	3	--	--	14	526	--	14
Oscoda	1,115	--	1	--	344	94	17	--	--	6	454	39	8
Otsego	628	4	--	1	64	61	13	4	--	5	241	4	55
Presque Isle	890	27	48	--	31	15	3	28	--	14	511	14	15
Roscommon	988	9	9	--	222	91	26	1	--	7	405	2	1
Wexford	781	4	--	--	35	103	4	--	--	12	208	--	17
Total	22,665	394	80	32	1,848	1,192	191	50	--	385	9,986	169	641

(Table 23 continued on next page)

(Table 23 continued)

Unit and county	All species	Species group											
		Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
S. Lower Peninsula													
Allegan	479	--	--	--	--	--	2	--	--	25	21	--	3
Barry	358	--	--	--	1	7	--	--	--	12	18	--	10
Berrien	104	--	--	--	--	--	--	--	--	6	--	--	3
Branch	138	--	--	--	--	--	--	--	--	15	--	--	2
Calhoun	144	--	--	--	1	1	--	--	--	19	--	--	10
Cass	228	--	--	--	--	--	--	--	--	22	--	--	14
Clinton	10	--	--	--	--	--	--	--	--	2	--	--	--
Eaton	60	--	--	--	--	--	--	--	--	14	--	--	6
Genessee	67	--	--	--	--	--	--	--	--	6	--	--	2
Gratiot	49	--	--	--	--	--	--	--	--	3	1	--	2
Hillsdale	78	--	--	--	--	--	--	--	--	8	--	--	2
Huron	12	--	--	--	--	--	--	--	--	2	3	--	--
Ingham	60	--	--	--	--	--	--	--	--	7	1	--	2
Ionia	78	--	--	--	--	--	--	--	--	3	--	--	6
Jackson	179	--	--	--	--	--	--	--	--	10	--	--	2
Kalamazoo	85	--	--	--	--	1	1	--	--	4	2	--	--
Kent	192	--	--	--	--	--	1	--	--	10	5	--	6
Lapeer	24	--	--	--	--	--	--	--	--	2	--	--	1
Lenawee	62	--	--	--	--	--	--	--	--	6	--	--	3
Livingston	91	--	--	--	--	--	--	--	--	7	--	--	1
Macomb	27	--	--	--	--	--	--	--	--	2	--	--	--
Monroe	50	--	--	--	--	--	--	--	--	2	--	--	2
Montcalm	233	--	--	--	--	16	3	--	--	7	55	--	4
Muskegon	356	--	--	1	3	8	3	--	--	8	34	--	--
Oakland	25	--	--	--	--	--	--	--	--	3	--	--	--
Ottawa	171	--	--	--	15	20	1	--	--	3	22	--	2
Saginaw	45	--	--	--	--	--	--	--	--	5	--	--	--
St. Clair	40	--	--	--	--	--	--	--	--	3	--	--	--
St. Joseph	254	--	--	--	--	--	--	--	--	14	5	--	5
Sanilac	16	--	--	--	--	--	--	--	--	3	4	--	--
Shiawassee	63	--	--	--	--	--	--	--	--	10	--	--	8
Tuscola	46	--	--	--	--	--	--	--	--	6	7	--	2
Van Buren	301	--	--	--	--	--	1	--	--	20	12	--	4
Washtenaw	136	--	--	--	--	--	--	--	--	9	--	--	2
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	4,261	--	--	1	20	53	12	--	--	278	190	--	104
State Total	63,328	1,915	2,076	1,526	4,248	3,048	1,831	2,100	239	980	15,957	649	1,456

(Table 23 continued on next page)

(Table 23 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
E. Upper Peninsula												
Alger	277	53	100	--	62	--	638	190	1	--	--	16
Chippewa	76	14	26	--	2	--	118	27	1	--	--	1
Delta	121	162	151	--	27	--	290	190	4	--	--	11
Luce	345	17	34	--	6	--	570	129	1	--	--	--
Mackinac	77	82	51	--	7	--	231	94	2	--	--	5
Menominee	73	135	92	--	19	--	280	80	19	--	--	6
Schoolcraft	135	86	98	--	15	--	259	163	--	--	--	12
Total	1,104	549	552	--	138	--	2,386	873	28	--	--	51
W. Upper Peninsula												
Baraga	--	57	210	--	221	--	704	175	11	--	--	24
Dickinson	--	118	23	--	14	--	116	54	14	1	--	3
Gogebic	--	13	325	--	228	--	1,497	173	7	--	--	35
Houghton	--	23	121	--	60	--	723	127	51	--	--	9
Iron	46	115	241	--	215	--	924	185	19	--	--	29
Keweenaw	--	21	33	--	--	--	237	89	74	--	--	--
Marquette	140	190	239	--	28	--	1,017	245	64	--	--	17
Ontonagon	--	16	142	--	85	--	587	166	16	--	--	5
Total	186	553	1,334	--	851	--	5,805	1,214	256	1	--	122
N. Lower Peninsula												
Alcona	5	35	--	--	--	--	8	49	138	24	--	--
Alpena	2	35	--	--	--	--	5	38	40	4	--	--
Antrim	18	2	2	--	5	--	94	18	--	--	--	--
Arenac	--	--	--	--	--	--	2	14	10	--	--	--
Bay	--	--	--	6	--	--	--	5	--	--	--	--
Benzie	20	8	3	--	1	--	132	109	68	--	--	2
Charlevoix	20	6	--	--	1	--	38	32	2	--	--	--
Cheboygan	7	96	--	1	--	--	46	66	11	--	--	1
Clare	5	25	--	--	--	--	7	72	200	45	--	5
Crawford	3	2	--	--	--	--	6	10	47	8	--	--
Emmet	24	18	3	--	--	--	90	24	8	--	--	6
Gladwin	--	12	--	5	--	--	2	57	42	4	--	--
Grand Traverse	6	4	--	--	--	--	21	25	14	5	--	1
Iosco	1	19	--	27	--	--	4	71	33	4	--	1
Isabella	--	5	--	11	--	--	3	29	42	14	--	--
Kalkaska	3	5	1	--	--	--	39	17	30	4	--	3
Lake	6	11	--	--	2	--	29	111	483	134	--	15
Leelanau	31	--	--	--	--	--	66	9	33	--	--	--
Manistee	47	30	16	--	9	--	95	107	226	51	--	32
Mason	6	10	--	--	--	--	24	40	146	25	--	3
Mecosta	--	14	2	--	2	--	33	40	62	17	--	9
Midland	1	20	--	15	--	--	--	37	29	8	--	--
Missaukee	4	25	--	--	--	--	32	120	75	17	--	3
Montmorency	7	43	--	--	--	--	46	44	98	12	--	--
Newaygo	15	--	--	5	--	--	39	126	324	91	--	6
Oceana	20	2	--	4	--	--	34	55	195	26	--	9
Ogemaw	1	24	--	--	--	--	12	70	131	28	--	--
Osceola	9	17	3	--	--	--	66	96	129	16	--	6
Oscoda	--	22	--	--	--	--	10	26	80	13	--	1
Otsego	8	10	--	--	3	--	112	19	24	--	--	--
Presque Isle	6	63	--	--	--	--	11	66	31	7	--	--
Roscommon	--	19	--	--	--	--	--	46	126	24	--	--
Wexford	10	9	3	--	3	--	79	189	80	20	--	5
Total	285	591	33	74	26	--	1,185	1,837	2,957	601	--	108

(Table 23 continued on next page)

(Table 23 continued)

Unit and county	Species group											
	Beech	Paper birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Walnut	Other hard-woods
S. Lower Peninsula												
Allegan	23	--	--	7	12	7	32	71	185	63	--	28
Barry	22	--	--	2	3	9	52	54	124	33	--	11
Berrien	8	--	--	10	2	2	27	6	21	4	--	15
Branch	--	--	--	8	2	3	7	46	20	25	3	7
Calhoun	1	--	--	--	2	3	7	27	43	21	--	9
Cass	6	--	--	--	7	9	17	32	63	18	5	35
Clinton	--	--	--	--	--	--	--	3	5	--	--	--
Eaton	5	--	--	--	2	3	16	8	2	3	--	1
Genessee	1	--	--	--	--	--	6	10	28	14	--	--
Gratiot	--	--	--	--	--	--	5	11	22	5	--	--
Hillsdale	--	--	--	2	--	--	15	14	25	9	1	2
Huron	--	2	--	5	--	--	--	--	--	0	--	--
Ingham	--	--	--	5	--	--	8	8	12	9	--	8
Ionia	6	--	--	--	--	--	9	8	35	3	3	5
Jackson	--	--	--	--	--	6	2	14	111	23	2	9
Kalamazoo	3	--	--	3	2	5	4	17	29	8	--	6
Kent	5	--	--	--	--	3	28	27	83	18	--	6
Lapeer	--	--	--	--	--	--	6	5	5	5	--	--
Lenawee	--	--	--	--	--	2	8	8	23	9	3	--
Livingston	--	--	--	--	--	3	2	13	42	21	--	2
Macomb	--	--	--	--	2	--	1	4	9	9	--	--
Monroe	--	--	--	3	--	3	2	3	25	5	3	2
Montcalm	3	--	--	--	1	--	7	17	98	20	--	2
Muskegon	8	--	--	--	--	--	10	46	185	42	--	8
Oakland	--	--	--	--	2	--	--	3	10	7	--	--
Ottawa	13	--	--	2	1	--	9	21	49	11	--	2
Saginaw	--	--	--	14	--	--	2	8	5	9	--	2
St. Clair	1	--	--	4	--	--	3	5	8	16	--	--
St. Joseph	--	--	--	--	--	20	7	26	128	15	20	14
Sanilac	--	1	--	--	--	--	--	3	2	3	--	--
Shiawassee	1	--	--	2	--	--	7	7	17	9	--	2
Tuscola	--	--	--	7	--	--	6	14	2	2	--	--
Van Buren	13	--	--	5	7	6	24	47	105	38	2	17
Washtenaw	--	--	--	--	--	3	3	14	59	33	10	3
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
Total	119	3	--	79	45	87	332	600	1,580	510	52	196
State Total	1,694	1,696	1,919	153	1,060	87	9,708	4,524	4,821	1,112	52	477

Table 24.--Residue produced at primary wood-using mills by type of material, type of use, and county, Michigan, 1984

(In thousand tons green weight)

EASTERN UPPER PENINSULA

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Alger								
Fiber products	2.19	34.28	2.19	34.28	--	--	--	--
Industrial fuel	1.28	28.62	--	--	1.28	28.62	1.62	16.70
Domestic fuel	--	4.60	--	4.60	--	--	--	--
Miscellaneous[4]	--	.81	--	.81	--	--	--	--
Total	3.47	68.31	2.19	39.69	1.28	28.62	1.62	16.70
Chippewa								
Industrial fuel	.51	.66	--	--	.51	.66	--	--
Domestic fuel	2.41	3.31	2.41	3.31	--	--	.87	1.24
Miscellaneous[4]	.70	.76	--	--	.70	.76	.01	--
Not used	.77	1.65	.36	.73	.41	.92	.13	.30
Total	4.39	6.38	2.77	4.04	1.62	2.34	1.01	1.54
Delta								
Fiber products	.72	4.26	.72	4.18	--	.08	--	--
Industrial fuel	7.90	4.99	4.31	2.23	3.59	2.76	2.70	3.31
Domestic fuel	.41	1.22	.41	1.21	--	.01	--	.01
Miscellaneous[4]	1.53	2.12	1.11	.01	.42	2.11	.07	--
Not used	1.34	.11	.98	.07	.36	.04	.26	.03
Total	11.90	12.70	7.53	7.70	4.37	5.00	3.03	3.35
Luce								
Fiber products	.09	2.79	.09	2.79	--	--	--	--
Industrial fuel	.51	24.07	.29	14.19	.22	9.88	.14	6.25
Domestic fuel	.01	--	.01	--	--	--	--	--
Not used	.10	--	.06	--	.04	--	.02	--
Total	.71	26.86	.45	16.98	.26	9.88	.16	6.25
Mackinac								
Industrial fuel	--	4.51	--	2.79	--	1.72	--	1.15
Domestic fuel	.51	1.97	.51	1.97	--	--	.12	.79
Miscellaneous[4]	.54	1.02	.21	--	.33	1.02	.02	--
Not used	.52	.02	.27	--	.25	.02	.20	.02
Total	1.57	7.52	.99	4.76	.58	2.76	.34	1.96

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Menominee								
Fiber products	15.34	13.72	13.57	10.06	1.77	3.66	--	--
Industrial fuel	3.51	7.39	.34	4.71	3.17	2.68	6.83	6.40
Domestic fuel	.74	1.20	.74	1.20	--	--	.21	.29
Miscellaneous[4]	3.60	1.48	--	--	3.60	1.48	1.56	--
Not used	.06	1.58	.04	.08	.02	1.50	.04	.06
Total	23.25	25.37	14.69	16.05	8.56	9.32	8.64	6.75
Schoolcraft								
Fiber products	1.34	4.03	1.34	4.03	--	--	--	--
Industrial fuel	1.96	2.41	.75	.04	1.21	2.37	.62	1.65
Not used	--	.22	--	.14	--	.08	--	.06
Total	3.30	6.66	2.09	4.21	1.21	2.45	.62	1.71
All counties								
Fiber products	19.68	59.08	17.91	55.34	1.77	3.74	--	--
Industrial fuel	15.67	72.65	5.69	23.96	9.98	48.69	11.91	35.46
Domestic fuel	4.08	12.30	4.08	12.29	--	.01	1.20	2.33
Miscellaneous[4]	6.37	6.19	1.32	.82	5.05	5.37	1.66	--
Not used	2.79	3.58	1.71	1.02	1.08	2.56	.65	.47
Total	48.59	153.80	30.71	93.43	17.88	60.37	15.42	38.26
WESTERN UPPER PENINSULA								
Baraga								
Fiber products	1.75	8.43	1.75	8.43	--	--	--	--
Charcoal	.30	1.58	.30	1.58	--	--	--	--
Industrial fuel	.58	12.75	--	10.14	.58	2.61	.87	8.57
Domestic fuel	.01	--	.01	--	--	--	.01	--
Miscellaneous[4]	.63	9.11	--	--	.63	9.11	--	--
Total	3.27	31.87	2.06	20.15	1.21	11.72	.88	8.57
Dickinson								
Fiber products	.01	12.38	.01	12.38	--	--	--	--
Industrial fuel	.01	26.00	--	11.88	.01	14.12	--	10.32
Domestic fuel	.44	.17	.28	.12	.16	.05	.09	.05
Miscellaneous[4]	--	.02	--	--	--	.02	--	--
Total	.46	38.57	.29	24.38	.17	14.19	.09	10.37
Gogebic								
Fiber products	2.94	28.38	2.02	19.53	.92	8.85	--	--
Industrial fuel	.36	4.30	.07	1.44	.29	2.86	.79	8.92
Miscellaneous[4]	.01	.51	--	--	.01	.51	--	--
Total	3.31	33.19	2.09	20.97	1.22	12.22	.79	8.92

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1/]		Fine[2/]		Bark[3/]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Houghton								
Fiber products	.29	21.44	.29	19.72	--	1.72	--	--
Industrial fuel	.62	15.21	--	4.50	.62	10.71	.09	9.04
Domestic fuel	.80	1.20	.80	1.20	--	--	.33	.51
Miscellaneous[4/]	.02	2.36	--	--	.02	2.36	--	--
Not used	--	--	--	--	--	--	--	1.26
Total	1.73	40.21	1.09	25.42	.64	14.79	.42	10.81
Iron								
Fiber products	--	9.06	--	9.06	--	--	--	--
Industrial fuel	2.93	1.12	1.85	--	1.08	1.12	.79	3.86
Domestic fuel	.29	.04	.28	.04	.01	--	.10	.02
Miscellaneous[4/]	.02	4.15	--	--	.02	4.15	--	--
Not used	.14	.02	--	--	.14	.02	--	--
Total	3.38	14.39	2.13	9.10	1.25	5.29	.89	3.88
Keweenaw								
Fiber products	3.10	12.97	3.10	12.97	--	--	--	--
Miscellaneous[4/]	--	--	--	--	--	--	.01	.03
Not used	1.80	7.55	--	--	1.80	7.55	1.29	5.48
Total	4.90	20.52	3.10	12.97	1.80	7.55	1.30	5.51
Marquette								
Fiber products	--	.72	--	.72	--	--	--	--
Industrial fuel	.39	.42	--	--	.39	.42	.38	.30
Domestic fuel	1.54	.55	1.21	.54	.33	.01	.77	.23
Miscellaneous[4/]	.09	.30	--	--	.09	.30	--	--
Not used	.49	--	.38	--	.11	--	.16	--
Total	2.51	1.99	1.59	1.26	.92	.73	1.31	.53
All counties								
Fiber products	8.09	93.38	7.17	82.81	.92	10.57	--	--
Charcoal	.30	1.58	.30	1.58	--	--	--	--
Industrial fuel	4.89	59.80	1.92	27.96	2.97	31.84	2.92	41.01
Domestic fuel	3.08	1.96	2.58	1.90	.50	.06	1.30	.81
Miscellaneous[4/]	.77	16.45	--	--	.77	16.45	.01	.03
Not used	2.43	7.57	.38	--	2.05	7.57	1.45	6.74
Total	19.56	180.74	12.35	114.25	7.21	66.49	5.68	48.59
NORTHERN LOWER PENINSULA								
Alcona								
Fiber products	--	2.30	--	2.30	--	--	--	--
Industrial fuel	--	1.34	--	--	--	1.34	--	--
Domestic fuel	1.45	1.81	1.45	1.81	--	--	.60	.33
Miscellaneous[4/]	.84	1.06	--	--	.84	1.06	--	1.42
Total	2.29	6.51	1.45	4.11	.84	2.40	.60	1.75

(Table 24 continued on next page)

[1/] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2/] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3/] Does not include bark at pulp and flakeboard mills.

[4/] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Alpena								
Fiber products	--	4.88	--	4.88	--	--	--	--
Industrial fuel	.78	.71	--	--	.78	.71	--	--
Domestic fuel	1.13	5.92	1.13	5.92	--	--	.44	2.52
Miscellaneous[4]	1.45	.28	--	--	1.45	.28	--	2.07
Not used	4.37	5.29	3.76	--	.61	5.29	.94	--
Total	7.73	17.08	4.89	10.80	2.84	6.28	1.38	4.59
Antrim								
Industrial fuel	--	2.85	--	2.85	--	--	--	--
Domestic fuel	.01	2.76	.01	2.76	--	--	--	.13
Miscellaneous[4]	.06	3.18	--	--	.06	3.18	.09	2.15
Not used	.10	.10	.10	--	--	.10	--	--
Total	.17	8.89	.11	5.61	.06	3.28	.09	2.28
Arenac								
Fiber products	--	5.99	--	4.64	--	1.35	--	1.97
Domestic fuel	.33	8.33	.33	8.33	--	--	--	3.54
Miscellaneous[4]	.19	6.47	--	.17	.19	6.30	.10	--
Not used	--	--	--	--	--	--	--	.07
Total	.52	20.79	.33	13.14	.19	7.65	.10	5.58
Bay								
Domestic fuel	--	.15	--	.15	--	--	--	.06
Miscellaneous[4]	--	.15	--	.04	--	.11	--	.02
Not used	--	.03	--	.02	--	.01	--	.01
Total	--	.33	--	.21	--	.12	--	.09
Benzie								
Industrial fuel	--	2.99	--	2.99	--	--	--	1.25
Domestic fuel	.02	3.63	.01	3.59	.01	.04	--	1.49
Miscellaneous[4]	--	3.68	--	--	--	3.68	--	--
Not used	--	.25	--	.09	--	.16	--	.04
Total	.02	10.55	.01	6.67	.01	3.88	--	2.78
Charlevoix								
Fiber products	.80	5.52	.80	5.52	--	--	--	--
Industrial fuel	.59	.13	.02	.11	.57	.02	.01	.04
Domestic fuel	.40	1.43	.40	1.43	--	--	--	--
Miscellaneous[4]	1.06	4.29	.58	--	.48	4.29	.42	2.27
Not used	--	.35	--	.35	--	--	.19	.74
Total	2.85	11.72	1.80	7.41	1.05	4.31	.62	3.05
Cheboygan								
Fiber products	1.19	13.77	1.19	13.77	--	--	--	--
Industrial fuel	.01	.37	--	.28	.01	.09	.03	.28
Domestic fuel	.19	1.32	.19	.82	--	.50	.08	.02
Miscellaneous[4]	.18	2.17	.06	.39	.12	1.78	.51	5.27
Not used	1.34	7.55	.39	.66	.95	6.89	.12	1.16
Total	2.91	25.18	1.83	15.92	1.08	9.26	.74	6.73

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Clare								
Fiber products	--	5.54	--	5.54	--	--	--	--
Miscellaneous[4]	--	3.23	--	--	--	3.23	--	2.35
Total	--	8.77	--	5.54	--	3.23	--	2.35
Crawford								
Industrial fuel	2.00	23.23	1.39	16.17	.61	7.06	.53	6.84
Domestic fuel	.01	.06	.01	.06	--	--	--	.03
Miscellaneous[4]	.20	2.35	--	--	.20	2.35	--	--
Not used	.92	1.41	.58	.87	.34	.54	.24	.37
Total	3.13	27.05	1.98	17.10	1.15	9.95	.77	7.24
Emmet								
Fiber products	--	6.37	--	5.79	--	.58	--	.26
Industrial fuel	.22	2.01	.22	--	--	2.01	.06	.66
Domestic fuel	.40	8.13	.40	4.76	--	3.37	.13	1.39
Miscellaneous[4]	.33	.55	--	--	.33	.55	--	2.61
Not used	.91	4.12	.56	1.67	.35	2.45	.17	.71
Total	1.86	21.18	1.18	12.22	.68	8.96	.36	5.63
Gladwin								
Domestic fuel	.09	.50	.06	.34	.03	.16	.02	.12
Miscellaneous[4]	--	.04	--	--	--	.04	--	.03
Total	.09	.54	.06	.34	.03	.20	.02	.15
Grand Traverse								
Domestic fuel	.37	.13	.37	.13	--	--	.09	.01
Miscellaneous[4]	.22	.08	--	--	.22	.08	.05	.05
Total	.59	.21	.37	.13	.22	.08	.14	.06
Iosco								
Fiber products	--	5.51	--	3.48	--	2.03	--	1.48
Domestic fuel	.44	2.05	.44	1.49	--	.56	.18	.63
Miscellaneous[4]	.26	1.83	--	.96	.26	.87	--	.41
Total	.70	9.39	.44	5.93	.26	3.46	.18	2.52
Isabella								
Fiber products	1.98	17.94	1.98	17.94	--	--	--	--
Industrial fuel	.27	5.27	--	--	.27	5.27	.20	3.85
Miscellaneous[4]	.88	5.17	--	--	.88	5.17	.66	3.74
Total	3.13	28.38	1.98	17.94	1.15	10.44	.86	7.59
Kalkaska								
Fiber products	--	.54	--	.54	--	--	--	--
Domestic fuel	--	.01	--	.01	--	--	--	.01
Miscellaneous[4]	--	.32	--	--	--	.32	--	--
Not used	.51	--	.32	--	.19	--	.14	.23
Total	.51	.87	.32	.55	.19	.32	.14	.24
Lake								
Fiber products	--	8.34	--	8.34	--	--	--	--
Domestic fuel	--	3.86	--	3.86	--	--	--	1.63
Miscellaneous[4]	--	2.88	--	.44	--	2.44	--	3.74
Not used	--	4.94	--	--	--	4.94	--	--
Total	--	20.02	--	12.64	--	7.38	--	5.37

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Leelanau								
Fiber products	.13	3.78	.13	3.78	--	--	--	--
Domestic fuel	.02	.85	.01	.54	.01	.31	.01	.23
Miscellaneous[4]	.09	2.62	.01	.42	.08	2.20	.06	1.66
Not used	.01	.24	--	--	.01	.24	--	--
Total	.25	7.49	.15	4.74	.10	2.75	.07	1.89
Manistee								
Charcoal	--	2.44	--	2.44	--	--	--	1.08
Domestic fuel	.09	.19	.09	.19	--	--	.03	.02
Miscellaneous[4]	.05	.78	--	--	.05	.78	--	--
Not used	--	.75	--	--	--	.75	--	--
Total	.14	4.16	.09	2.63	.05	1.53	.03	1.10
Mason								
Fiber products	--	4.02	--	4.02	--	--	--	--
Domestic fuel	--	5.08	--	5.08	--	--	--	.98
Miscellaneous[4]	--	5.30	--	--	--	5.30	--	2.82
Total	--	14.40	--	9.10	--	5.30	--	3.80
Midland								
Industrial fuel	1.02	4.10	1.02	4.10	--	--	.44	1.74
Domestic fuel	.04	.36	.04	.36	--	--	.02	.15
Miscellaneous[4]	.62	4.72	--	1.34	.62	3.38	--	.57
Total	1.68	9.18	1.06	5.80	.62	3.38	.46	2.46
Missaukee								
Fiber products	.55	8.65	.55	8.65	--	--	--	--
Domestic fuel	.83	.96	.83	.96	--	--	.31	--
Miscellaneous[4]	.80	5.60	--	--	.80	5.60	.24	4.09
Total	2.18	15.21	1.38	9.61	.80	5.60	.55	4.09
Montmorency								
Domestic fuel	.03	1.72	.03	1.72	--	--	.01	.73
Miscellaneous[4]	.02	.49	--	.32	.02	.17	--	.13
Not used	.01	5.48	.01	2.82	--	2.66	--	1.19
Total	.06	7.69	.04	4.86	.02	2.83	.01	2.05
Newaygo								
Fiber products	--	9.14	--	9.14	--	--	--	1.77
Industrial fuel	--	4.50	--	--	--	4.50	--	--
Domestic fuel	.05	3.66	.05	3.66	--	--	.02	1.18
Miscellaneous[4]	.03	5.94	--	1.94	.03	4.00	--	2.94
Not used	--	.08	--	--	--	.08	.50	.38
Total	.08	23.32	.05	14.74	.03	8.58	.52	6.27

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Oceana								
Fiber products	.01	4.41	.01	4.41	--	--	--	--
Industrial fuel	--	1.42	--	--	--	1.42	--	.65
Domestic fuel	.16	2.09	.16	2.09	--	--	.07	.60
Miscellaneous[4]	.13	6.36	.01	2.07	.12	4.29	.02	2.24
Not used	.05	.25	.03	.03	.02	.22	.01	.30
Total	.35	14.53	.21	8.60	.14	5.93	.10	3.79
Ogemaw								
Industrial fuel	3.56	.52	2.59	.52	.97	--	1.14	.23
Domestic fuel	1.56	3.07	1.56	3.07	--	--	.19	.82
Miscellaneous[4]	2.10	2.49	.47	.27	1.63	2.22	.57	.12
Not used	2.11	.33	1.28	.19	.83	.14	.69	.56
Total	9.33	6.41	5.90	4.05	3.43	2.36	2.59	1.73
Osceola								
Fiber products	--	3.42	--	3.42	--	--	--	--
Charcoal	--	13.82	--	13.82	--	--	--	--
Domestic fuel	--	1.29	--	1.29	--	--	--	--
Miscellaneous[4]	--	10.78	--	--	--	10.78	--	7.84
Total	--	29.31	--	18.53	--	10.78	--	7.84
Oscoda								
Fiber products	2.81	1.41	2.81	1.41	--	--	--	--
Industrial fuel	2.99	1.97	1.82	.72	1.17	1.25	.74	.76
Domestic fuel	.05	2.42	.05	2.42	--	--	.02	.57
Miscellaneous[4]	1.52	1.56	--	--	1.52	1.56	1.20	.60
Not used	.27	1.15	.15	.84	.12	.31	.10	.36
Total	7.64	8.51	4.83	5.39	2.81	3.12	2.06	2.29
Otsego								
Industrial fuel	--	.56	--	.56	--	--	--	.24
Domestic fuel	.13	4.22	.13	4.22	--	--	.05	1.78
Miscellaneous[4]	.05	2.88	--	--	.05	2.88	--	--
Not used	.08	.80	.03	.56	.05	.24	.01	.24
Total	.26	8.46	.16	5.34	.10	3.12	.06	2.26
Presque Isle								
Fiber products	.07	1.44	.07	1.44	--	--	--	--
Industrial fuel	--	.09	--	--	--	.09	--	--
Domestic fuel	.21	2.53	.21	2.53	--	--	.06	.94
Miscellaneous[4]	.13	.35	--	--	.13	.35	.53	.68
Not used	.52	4.94	.31	1.94	.21	3.00	.18	.88
Total	.93	9.35	.59	5.91	.34	3.44	.77	2.50
Roscommon								
Fiber products	.90	.10	.90	.10	--	--	--	--
Domestic fuel	.29	.05	.29	.05	--	--	.11	.02
Miscellaneous[4]	.61	.07	--	--	.61	.07	.38	.04
Not used	.08	.01	--	--	.08	.01	--	--
Total	1.88	.23	1.19	.15	.69	.08	.49	.06

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Wexford								
Fiber products	.10	6.85	.10	6.85	--	--	--	--
Miscellaneous[4]	.06	3.99	--	--	.06	3.99	.04	2.88
Total	.16	10.84	.10	6.85	.06	3.99	.04	2.88
All counties								
Fiber products	8.54	119.92	8.54	115.96	--	3.96	--	5.48
Charcoal	--	16.26	--	16.26	--	--	--	1.08
Industrial fuel	11.44	52.06	7.06	28.30	4.38	23.76	3.15	16.54
Domestic fuel	8.30	68.58	8.25	63.64	.05	4.94	2.44	19.93
Miscellaneous[4]	11.88	91.66	1.13	8.36	10.75	83.30	4.87	52.74
Not used	11.28	38.07	7.52	10.04	3.76	28.03	3.29	7.24
Total	51.44	386.55	32.50	242.56	18.94	143.99	13.75	103.01
SOUTHERN LOWER PENINSULA								
Allegan								
Domestic fuel	--	5.10	--	5.10	--	--	--	.49
Miscellaneous[4]	--	2.95	--	--	--	2.95	.11	1.64
Not used	--	.08	--	.04	--	.04	--	.02
Total	--	8.13	--	5.14	--	2.99	.11	2.15
Barry								
Fiber products	--	13.85	--	13.85	--	--	--	--
Industrial fuel	.12	6.49	.08	--	.04	6.49	.01	1.65
Domestic fuel	.14	2.77	.14	2.77	--	--	.06	1.11
Miscellaneous[4]	.08	3.19	--	--	.08	3.19	.02	4.21
Total	.34	26.30	.22	16.62	.12	9.68	.09	6.97
Berrien								
Domestic fuel	.03	.34	.03	.29	--	.05	.01	.08
Miscellaneous[4]	.02	.13	--	.01	.02	.12	--	--
Not used	--	.14	--	--	--	.14	--	.06
Total	.05	.61	.03	.30	.02	.31	.01	.14
Branch								
Fiber products	--	1.74	--	1.74	--	--	--	--
Industrial fuel	--	2.70	--	--	--	2.70	--	1.17
Domestic fuel	--	--	--	--	--	--	--	.04
Miscellaneous[4]	--	2.69	--	1.68	--	1.01	--	.76
Total	--	7.13	--	3.42	--	3.71	--	1.97

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Clinton								
Fiber products	--	12.09	--	12.09	--	--	--	--
Domestic fuel	--	--	--	--	--	--	.05	5.10
Miscellaneous[4]	.19	7.04	.12	--	.07	7.04	--	--
Total	.19	19.13	.12	12.09	.07	7.04	.05	5.10
Eaton								
Fiber products	--	4.85	--	4.85	--	--	--	--
Industrial fuel	--	3.60	--	1.08	--	2.52	--	.27
Domestic fuel	.09	.34	.09	.34	--	--	.04	.15
Miscellaneous[4]	.05	6.27	--	3.25	.05	3.02	--	3.59
Total	.14	15.06	.09	9.52	.05	5.54	.04	4.01
Hillsdale								
Fiber products	--	4.69	--	4.69	--	--	--	--
Domestic fuel	--	.40	--	.40	--	--	--	.17
Miscellaneous[4]	--	2.97	--	--	--	2.97	--	2.00
Total	--	8.06	--	5.09	--	2.97	--	2.17
Ingham								
Fiber products	--	.19	--	.19	--	--	--	--
Industrial fuel	--	.46	--	.46	--	--	--	--
Domestic fuel	.01	.47	.01	.47	--	--	--	.40
Miscellaneous[4]	--	.80	--	.09	--	.71	.09	.12
Total	.01	1.92	.01	1.21	--	.71	.09	.52
Ionia								
Fiber products	--	5.21	--	5.21	--	--	--	--
Domestic fuel	--	2.66	--	2.66	--	--	--	.57
Miscellaneous[4]	--	7.34	--	1.74	--	5.60	--	3.48
Total	--	15.21	--	9.61	--	5.60	--	4.05
Kalamazoo								
Industrial fuel	--	.02	--	.01	--	.01	--	.01
Total	--	.02	--	.01	--	.01	--	.01
Kent								
Fiber products	--	8.01	--	8.01	--	--	--	--
Industrial fuel	.03	.55	--	--	.03	.55	--	--
Domestic fuel	.21	3.91	.20	3.80	.01	.11	--	--
Miscellaneous[4]	3.94	6.21	2.44	--	1.50	6.21	1.13	5.02
Total	4.18	18.68	2.64	11.81	1.54	6.87	1.13	5.02
Lenawee								
Fiber products	--	17.17	--	17.17	--	--	--	--
Industrial fuel	--	5.00	--	--	--	5.00	--	--
Miscellaneous[4]	--	5.00	--	--	--	5.00	--	7.30
Total	--	27.17	--	17.17	--	10.00	--	7.30

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Livingston								
Domestic fuel	--	.21	--	.21	--	--	--	.09
Miscellaneous[4]	--	.12	--	--	--	.12	--	--
Total	--	.33	--	.21	--	.12	--	.09
Macomb								
Industrial fuel	--	.18	--	.18	--	--	--	.08
Domestic fuel	--	.73	--	.73	--	--	--	.31
Miscellaneous[4]	--	.53	--	--	--	.53	--	--
Total	--	1.44	--	.91	--	.53	--	.39
Monroe								
Domestic fuel	--	.33	--	.33	--	--	--	.14
Miscellaneous[4]	--	.19	--	--	--	.19	--	--
Total	--	.52	--	.33	--	.19	--	.14
Montcalm								
Fiber products	.05	1.09	.05	1.09	--	--	--	--
Industrial fuel	.02	.66	--	--	.02	.66	--	--
Domestic fuel	.06	3.45	.06	3.18	--	.27	.02	2.11
Miscellaneous[4]	.10	7.71	.04	3.89	.06	3.82	.04	1.22
Not used	--	--	--	--	--	--	--	.05
Total	.23	12.91	.15	8.16	.08	4.75	.06	3.38
Muskegon								
Fiber products	--	2.94	--	2.94	--	--	--	--
Industrial fuel	--	4.00	--	.34	--	3.66	--	.14
Domestic fuel	--	5.73	--	5.73	--	--	--	2.43
Miscellaneous[4]	--	1.17	--	--	--	1.17	--	1.24
Not used	--	.72	--	.18	--	.54	--	.08
Total	--	14.56	--	9.19	--	5.37	--	3.89
Oakland								
Domestic fuel	--	.32	--	.32	--	--	--	.14
Miscellaneous[4]	--	.19	--	--	--	.19	--	--
Total	--	.51	--	.32	--	.19	--	.14
Ottawa								
Fiber products	--	3.35	--	3.35	--	--	--	--
Industrial fuel	.09	1.95	.09	--	--	1.95	.03	--
Domestic fuel	.05	1.01	.05	1.01	--	--	.02	.42
Miscellaneous[4]	.07	.58	--	--	.07	.58	--	1.43
Total	.21	6.89	.14	4.36	.07	2.53	.05	1.85

(Table 24 continued on next page)

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

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(Table 24 continued)

County and type of use	Wood residue							
	Total		Coarse[1]		Fine[2]		Bark[3]	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Saginaw								
Fiber products	--	4.00	--	4.00	--	--	--	--
Domestic fuel	.03	.11	.03	.11	--	--	.01	.05
Miscellaneous[4]	.05	11.17	.02	5.55	.03	5.62	.01	4.05
Total	.08	15.28	.05	9.66	.03	5.62	.02	4.10
St. Clair								
Domestic fuel	.04	2.02	.04	2.02	--	--	.02	.86
Miscellaneous[4]	.02	1.18	--	--	.02	1.18	--	--
Not used	--	.11	--	.07	--	.04	--	.03
Total	.06	3.31	.04	2.09	.02	1.22	.02	.89
St. Joseph								
Industrial fuel	--	.52	--	.33	--	.19	--	.14
Total	--	.52	--	.33	--	.19	--	.14
Shiawassee								
Domestic fuel	.11	.29	.07	.18	.04	.11	.03	.08
Total	.11	.29	.07	.18	.04	.11	.03	.08
Tuscola								
Miscellaneous[4]	--	.13	--	--	--	.13	--	--
Not used	--	1.32	--	.92	--	.40	--	.39
Total	--	1.45	--	.92	--	.53	--	.39
Van Buren								
Industrial fuel	--	.62	--	.07	--	.55	--	.25
Domestic fuel	--	.82	--	.82	--	--	--	.34
Miscellaneous[4]	--	.74	--	.27	--	.47	--	--
Total	--	2.18	--	1.16	--	1.02	--	.59
All counties								
Fiber products	.05	79.18	.05	79.18	--	--	--	--
Industrial fuel	.26	26.75	.17	2.47	.09	24.28	.04	3.71
Domestic fuel	.77	31.01	.72	30.47	.05	.54	.26	15.08
Miscellaneous[4]	4.52	68.30	2.62	16.48	1.90	51.82	1.40	36.06
Not used	--	2.37	--	1.21	--	1.16	--	.63
Total	5.60	207.61	3.56	129.81	2.04	77.80	1.70	55.48
Total Michigan								
Fiber products	36.36	351.56	33.67	333.29	2.69	18.27	--	5.48
Charcoal	.30	17.84	.30	17.84	--	--	--	1.08
Industrial fuel	32.26	211.26	14.84	82.69	17.42	128.57	18.02	96.72
Domestic fuel	16.23	113.85	15.63	108.30	.60	5.55	5.20	38.15
Miscellaneous[4]	23.54	182.60	5.07	25.66	18.47	156.94	7.94	88.83
Not used	16.50	51.59	9.61	12.27	6.89	39.32	5.39	15.08
Total	125.19	928.70	79.12	580.05	46.07	348.65	36.55	245.34

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark at pulp and flakeboard mills.

[4] Livestock bedding, mulch, poultry litter, etc.

Blyth, James E.; Weatherspoon, Anthony K.; Smith, W. Brad. 1988. Michigan timber industry—an assessment of timber product output and use. Resour. Bull. NC-109. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 55 p.

Discusses recent Michigan forest industry trends; production and receipts of pulpwood, saw logs, and veneer logs; and production of other timber products in 1984. Reports on logging residue, on wood and bark residue generated at primary wood-using mills, and on disposition of this mill residue.

KEY WORDS: Pulpwood, saw logs, veneer logs, residue.